ORDER NO. TSD-7609-253

Service Manual

FM/AM/FM STEREO RADIO WITH FM "SENSOR TOUCH" PRESET TUNING SYSTEM WITH DOLBY* NOISE REDUCTION SYSTEM, CASSETTE PLAYER/RECORDER AND RECORD PLAYER

Compact Stereo

SG-3090L

Specifications

AMPLIFIER SECTION

Power Output	MPO 2×40W (THD 1%, 4 ohms) RMS 2×35W (THD 1%, 4 ohms) One Channel Driven RMS 2×28W (THD 1%, 4 ohms) Both Channel Driven
Frequency Response	10 Hz ~ 25 kHz, ±1.5 dB (DIN)
Power Band Width	10 Hz ~ 30 kHz, −3 dB (DIN)
Input Sensitivity and Impedance:	
Phono	3 mV, 47k ohms
Mic	1 mV, 3k ohms
Tape	300 mV, 30k ohms
Rec Out and Impedance	DIN: 40 mV, 82k ohms
Tone Controls:	
Bass	±15 dB at 50 HZ
Treble	±15 dB at 10 kHz
High Filter	−6 dB/oct. from 7 kHz
Loudness Control	+10 dB at 50 Hz (Volume: at −30 dB position)

FM TUNER SECTION

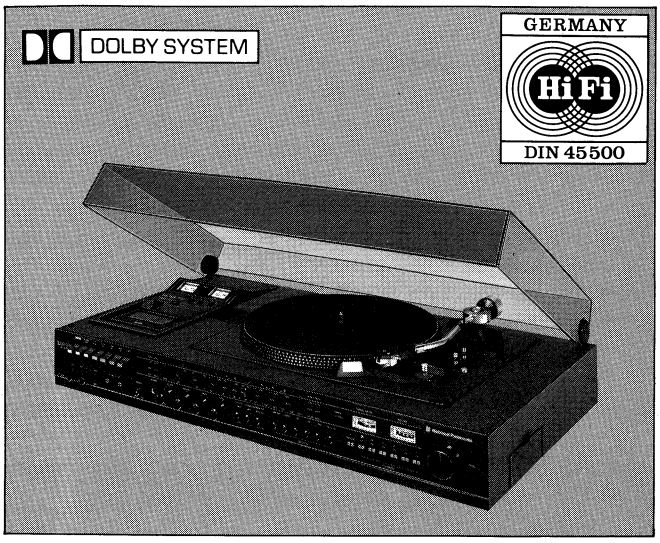
Tuning System	Varactor Diode with 6 "Sensor Touch" Pre-selectors and Manual Tuning
Frequency Range	87.5 MHz ~ 108 MHz
Intermediate Frequency (IF)	10.7 MHz
Sensitivity	2.5 μV (IHF) 3.5 μV (S/N 26 dB, Mod. 40 kHz) (DIN)
Image Ratio	45 dB (98 MHz)
Signal to Noise Ratio	60 dB (at 1 kHz, 60 dB, 40 kHz)
Distortion	MONO: 0.4% (at 1 kHz, 60 dB, 100%) STEREO: 0.5% (at 1 kHz, 60dB, 100%)
Stereo Separation	40 dB (at 1 kHz, 60 dB, 30%) 30 dB, 250 Hz ~ 6.3 kHz (60 dB, 30%) (DIN) 18 dB, 6.3 kHz ~ 12.5 kHz (60 dB, 30%) (DIN)
Selectivity	60 dB (at 1 kHz, 60 dB, 30%)

AM TUNER SECTION

Frequency Range	MW: 525 ~ 1605 kHz (572 ~ 187 m) LW: 145 ~ 285 kHz (2070 ~ 1050 m) SW: 5.9 ~ 18 MHz (50.8 ~ 16.7 m)
Intermediate Frequency (IF)	455 kHz
Sensitivity	MW: 100 μV/m for 50 mW (1 MHz) LW: 250 μV/m for 50 mW (220 kHz) SW: 8 μV for 50 mW (12 MHz)
Image Ratio	MW: 45 dB (1 MHz) LW: 43 dB (220 kHz) SW: 15 dB (12 MHz)

RECORD PLAYER SECTION

Player System	Belt-Drive, Automatic Return
Turntable	30 cm (12″), Aluminum Die-Cast
Turntable Speeds	33-1/3 and 45 rpm, 2-speed with Pitch Control and Stroboscope
Wow and Flutter	0.1% (WRMS) 0.15% (DIN WTD)
Deviation of Turntable Speeds	+1.5%, −1.0% (DIN)
Phonomotor	Frequency Generated Servo DC Motor
Cartridge	Moving Magnet, EPC-270C-X
Stylus	Diamond, EPS-270SD
Stylus Pressure	1.5g ~ 2.0g
Frequency Response	20 Hz ~ 20 kHz (DIN)
Separation	23 dB (DIN)
Signal to Noise Ratio	60 dB (DIN)



* Dolby is the trade mark of Dolby Laboratories Inc.

CASSETTE PLAYER/RECORDER

Playing System	Full Automatic Shut Off and Pause Control
Track System	4-Track, 2-Channel
Recording System	AC Bias, 50 kHz with Dolby NR System
Erasing System	AC Erase, 50 kHz
Tape Speed	4.75 cm/sec. (1-7/8 i.p.s.)
Frequency Response	25 Hz ~ 13 kHz (NORMAL) 25 Hz ~ 16 kHz (FeCr) 20 Hz ~ 16 kHz (CrO_2)
Signal to Noise Ratio	DOLBY NR−OUT: 54 dB (DIN) DOLBY NR−IN: 60 dB (DIN)
Erase Ratio	70 dB (DIN)
Channel Separation	40 dB (DIN)
Cross Talk	60 dB (DIN)
Wow and Flutter	0.1% (WRMS) 0.2% (DIN)
POWER CONSUMPTION	200W
POWER SUPPLY	AC 110V, 120V, 220V, 240V, 50/60 Hz
DIMENSIONS (W×H×D)	
Center Unit	740 mm×183 mm×416 mm (29-1/16″)×(7-7/32″)×(16-3/8″)

WEIGHT

Center Unit	17.1 kg (37 lb. 10 oz.)

- Specifications are subject to change without notice for further improvement.

National Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

DISASSEMBLY INSTRUCTIONS

■ **To Remove Record Player**

Lift record player and unplug 5P connector jack from PC board and 2 pin plugs from record player socket.

NOTE:

When removing turntable, be sure to take off the belt from the capstan as shown in Fig. 1.

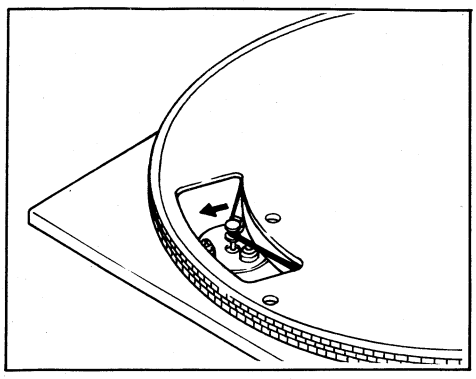


FIG. 1

■ **To Replace Components**

1. Remove record player. (Refer to above instructions.)
2. Push EJECT button to open cassette cover.
3. Carefully push stops of cassette cover located on both sides, as shown in Fig. 2. Then cassette cover can now be removed from cassette player/recorder panel.
4. Remove two cassette player/recorder panel mounting screws, Nos. 1 ~ 2, as shown in Fig. 7.
5. Remove seven (7) knobs from front panel.
6. Remove four (4) bottom board mounting screws, Nos. 12 ~ 15, as shown in Fig. 7.
7. Remove five (5) rear board mounting screws Nos. 7 ~ 11, and remove four (4) cabinet mounting screws, Nos. 3 ~ 6, as shown in Fig. 7.
8. Unsolder faulty components, and replace it with a new one.
9. To reassemble, reverse above procedure.

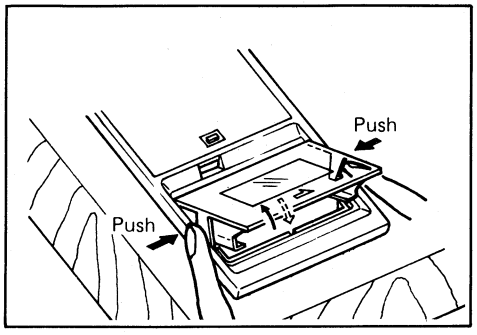


FIG. 2

■ **To Remove Escutcheon from Chassis**

1. Refer to above instructions 1 to 5.
2. Remove five (5) escutcheon mounting screws Nos. 16 ~ 20, as shown in Fig. 7.
3. To reassemble, reverse above procedure.

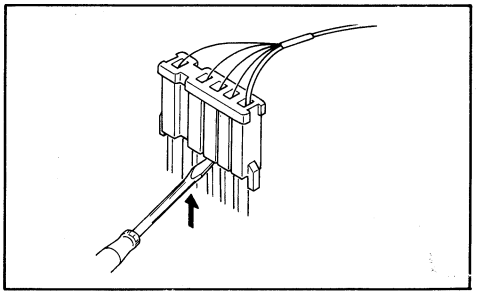


FIG. 3

■ **To Remove Cassette Player/Recorder**

1. Refer to instructions 1 to 7 above.
2. Remove seven (7) cassette player/recorder mounting screws Nos. 21 ~ 27, as shown in Fig. 7, and remove mike jack.
3. To reassemble, reverse above procedure.

■ **To Remove the Connector Assembly**

Raise the connector plug with a screwdriver, and pull it up as shown in Fig. 3.

Be careful not to damage connector lead wires.

■ **To Remove Remote Wire Assembly**

Lift remote wire assembly upward by pushing the lower portion of plastic hook with a suitable screwdriver, as shown in Fig. 4.

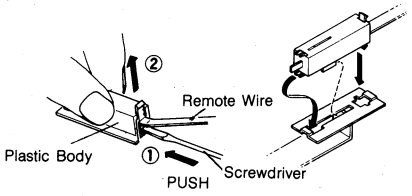


FIG. 4 FIG. 5

■ **To Install Remote Wire Assembly**

Put the front portion of remote wire assembly into the mounting board while inclining the plastic body and push the top portion of body, as shown in Fig. 5.

■ **Note for Treatment of Remote Wire Assembly**

When servicing remote wire assembly, be sure to hold gently, and do not bend a part of it tightly, as shown in Fig. 6.

Before lifting the 8-track player/recorder (or circuit board), be sure to remove remote wire assembly carefully to prevent it from being damaged.

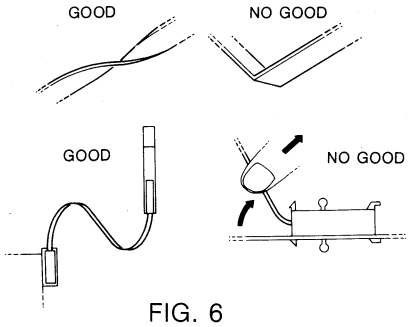


FIG. 6

LOCATION OF PARTS

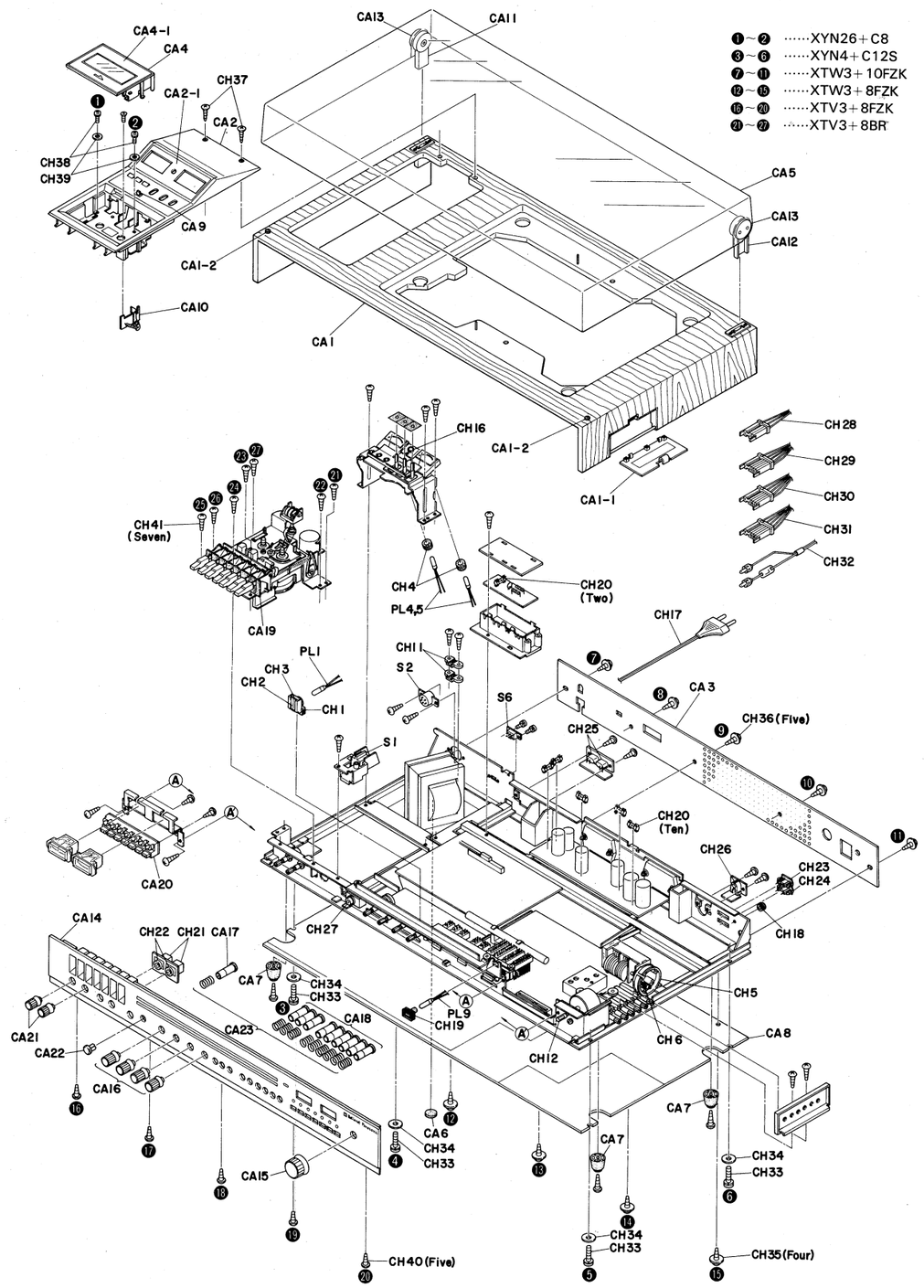


FIG. 7

EXPLODED VIEW OF CASSETTE TAPE PLAYER/RECORDER

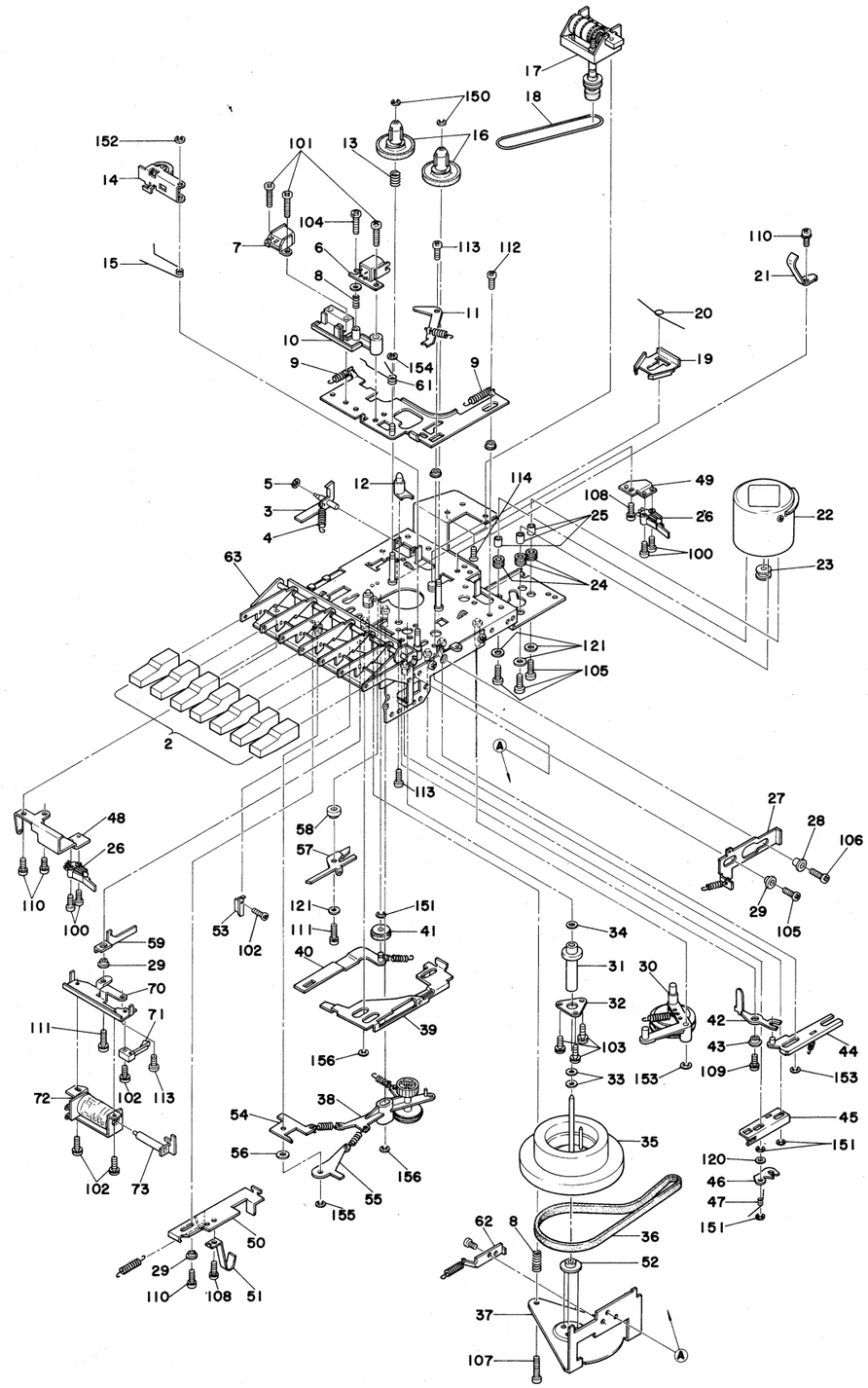
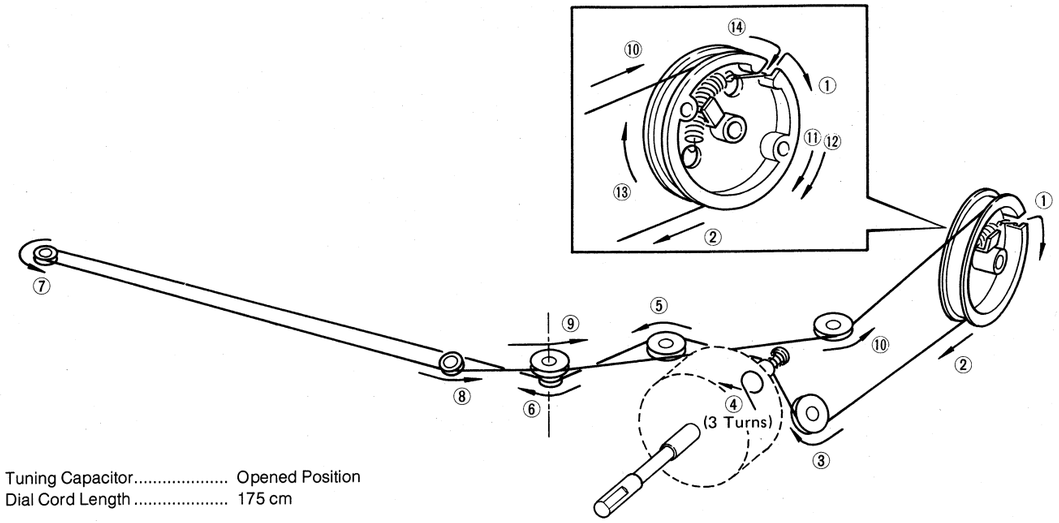


FIG. 8

DIAL CORD STRINGING GUIDE



Tuning Capacitor..... Opened Position
Dial Cord Length..... 175 cm

FIG. 9

ALIGNMENT INSTRUCTIONS (RADIO)—1

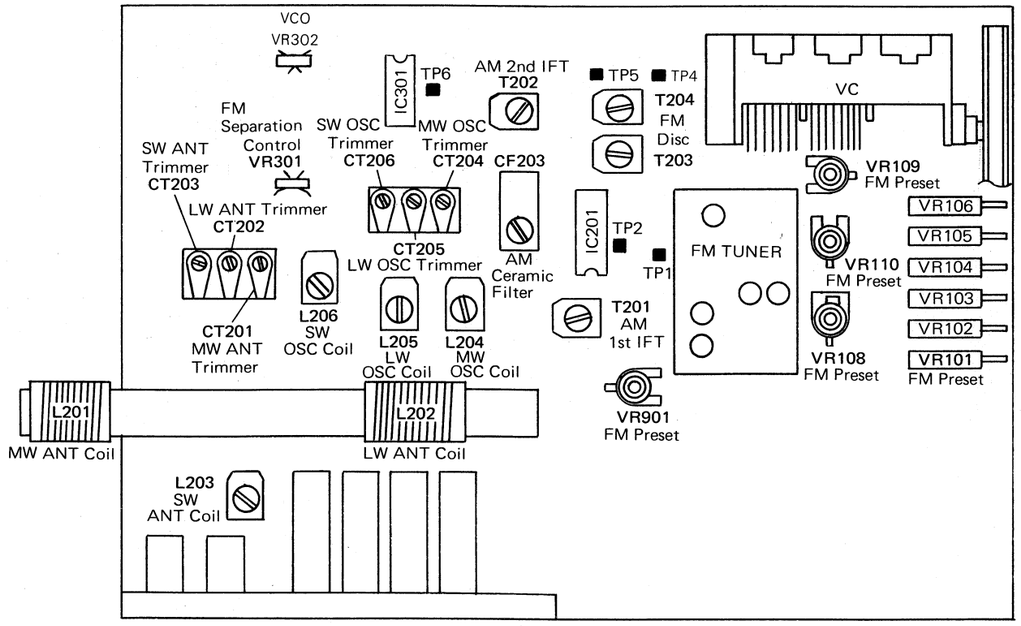


FIG. 10

ALIGNMENT INSTRUCTIONS (RADIO)—2

Notes:
1. Volume Control ..... Maximum (AM-IF and RF, FM-RF)
   Minimum (FM-IF)
2. Bass and Treble Control ..... Center
3. Balance Control..... Center
4. Band Selector ..... LW, MW, SW, FM AUTO
5. Power Switch ..... ON
6. Tape Monitor..... SOURCE
7. Output to signal generator should be no higher than necessary to obtain output reading.
8. Make certain that speaker system is connected to the tuner when aligning.

STEP	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	ADJUST	REMARKS
	CONNECTION	FREQUENCY				
	AM-IF and RF ALIGNMENT					
1	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. with 400 Hz	Point of non-intereference (on/about 600 kHz)	Output meter across speaker jack (L). (Imp. 4Ω)	T201 (AM 1st IFT) T202 (AM 2nd IFT)	Adjust for maximum output.
2 (LW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	145 kHz 30% Mod. with 400 Hz	145 kHz (15.7 mm)	Output meter across speaker jack (L). (Imp. 4Ω)	L205 (LW OSC Coil) L202 (LW ANT Coil)	Adjust for maximum output by sliding coil L202 along ferrite core.
3 (LW)	Fashion loop of several turns of wire and radiate signal into loop of receiver	285 kHz 30% Mod. with 400 Hz	285 kHz (194.7 mm)	Output meter across speaker jack (L). (Imp. 4Ω)	CT205 (LW OSC Trimmer) CT202 (LW ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).
4 (MW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	550 kHz 30% Mod. with 400 Hz	550 kHz (22.7 mm)	Output meter across speaker jack (L). (Imp. 4Ω)	L204 (MW OSC Coil) L201 (MW ANT Coil)	Adjust for maximum output by sliding coil L201 along ferrite core.
5 (MW)	Fashion loop of several turns of wire and radiate signal into loop of receiver.	1500 Hz 30% Mod. with 400 Hz	1500 kHz (192.1 mm)	Output meter across speaker jack (L). (Imp. 4Ω)	CT204 (MW OSC Trimmer) CT201 (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).
6 (SW)	Connect to EXT antenna and ground through SW Dummy antenna. (Refer to Fig. 13)	5.9 MHz 30% Mod. with 400 Hz	5.9 MHz (18.5 mm)	Output meter across speaker jack (L). (Imp. 4Ω)	L206 (SW OSC Coil) L203 (SW ANT Coil)	Adjust for maximum output.
7 (SW)	Connect to EXT antenna and ground through SW Dummy antenna. (Refer to Fig. 13)	18 MHz 30% Mod. with 400 Hz	18 MHz (201.1 mm)	Output meter across speaker jack (L). (Imp. 4Ω)	CT206 (SW OSC Trimmer) CT203 (SW ANT Trimmer)	Adjust for maximum output. Repeat steps (6) and (7).
Note: CF203 is pre-aligned. Do not touch it.						
	FM-IF and DETECTOR ALIGNMENT					
1 (FM)	High side through 0.001mfd to point TP1. Common to chassis (TP2).	10.7 MHz (400 kHz SWP.)	Point of non-interference (on/about 98 MHz)	Connect vert amp. of scope to point TP4. Common to chassis (TP5).	T203 (FM 1st IFT)	Adjust for maximum amplitude and symmetrical curve (Refer to Fig. 11)
2 (FM)	High side through 0.001mfd to point TP1. Common to chassis (TP2).	10.7 MHz (400 kHz SWP).	Point of non-interference (on/about 98 MHz)	Connect vert amp. of scope to point TP4. Common to chassis (TP5).	T204 (FM Disc. IFT)	Adjust for maximum amplitude and proper linearity between ±100 kHz markers. (Refer to Fig. 12)
Note: Before aligning step 1, turn the core of T204 fully counterclockwise.						

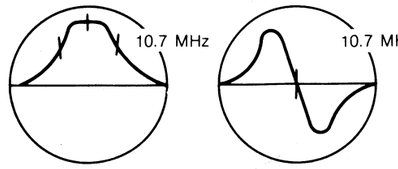


FIG. 11

FIG. 12

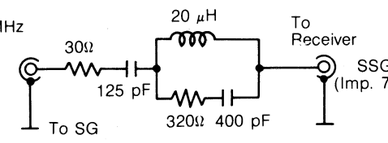


FIG. 13

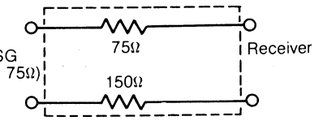


FIG. 14 DUMMY ANTENNA

SCHEMATIC DIAGRAM OF MODE

FM RF TUNER
SSD5002
FM TUNING
TR101~107 2SC1684
D101~108 MA161

FM AGC
D207,208
20A90

AM AGC
D201
20A90

FM AM IF
IC201
AN217

AM CONV
TR201
2SC1359

FM DET
D202, 203
20A90

TUNING METER
TR202
2SC828
D204 20A90
D205 VD1123

AM DET
D206
20A90

FM AF AMP
TR301
2SC1327

FM MPX
IC301
LA3350

MUTING
TR203,204,205,206
2SC1684

SWITCHING
D301, 302
MA161

D911 MA1130
D910 MA1130
D912 MA1075

A.V.R
TR903 2SC13
TR904 2SC16
TR905 2SC13
TR906 2SC16

MANUAL/PRESET TOUCH BUTTON
P6
P5
P4
P3
P2
P1
MANUAL

MANUAL/PRESET INDICATOR
P6 DI15
P5 DI14
P4 DI13
P3 DI12
P2 DI11
P1 DI10
MANUAL DI09

FM MANUAL/ PRESET INDICATOR LAMP
DI09~115
SR103D

(—V) is shown the voltage of CHANNEL ON.

FM DIAL METER

PLAY/REC HEAD Lch

PLAY/REC HEAD Rch

TAPE EQ AMP
IC401 LA3122
or TR411,412,413,414
2SC1327—S.T.U

IC401 LA3122 REFER TO FIG.1 (DISCRETE)

DOLBY
IC801,802 NE545B

STABILIZER
D806 MA1100

DAMPER
D807 1001

PULSE AMP
TR803 2SC828—R,S

RECT
D804,805 0A90

END SENSOR
TR804 2SC828—R,S

TR805 2SC1568—Q

STABILIZER
D909 MA1130

RIPPLE FILTER
TR902 2SC1398

MIC Lch

MIC Rch

MIC AMP
TR407,408
2SC1327

BIAS OSC
TR801
2SB175

BIAS AMP
TR802
2SB324

REC AMP
TR405,406
2SC828

ERASE HEAD

AOC
D803
VD1121

When adjusting FM band coverage, minimum frequency must not be adjusted under 87.5 MHZ

REC LAMP
BIAS SW
PL6

Whistle Defeat SW
S6

EQ SW
PL7

CrO2 LAMP

DOLBY SW
PL8
DOLBY LAMP

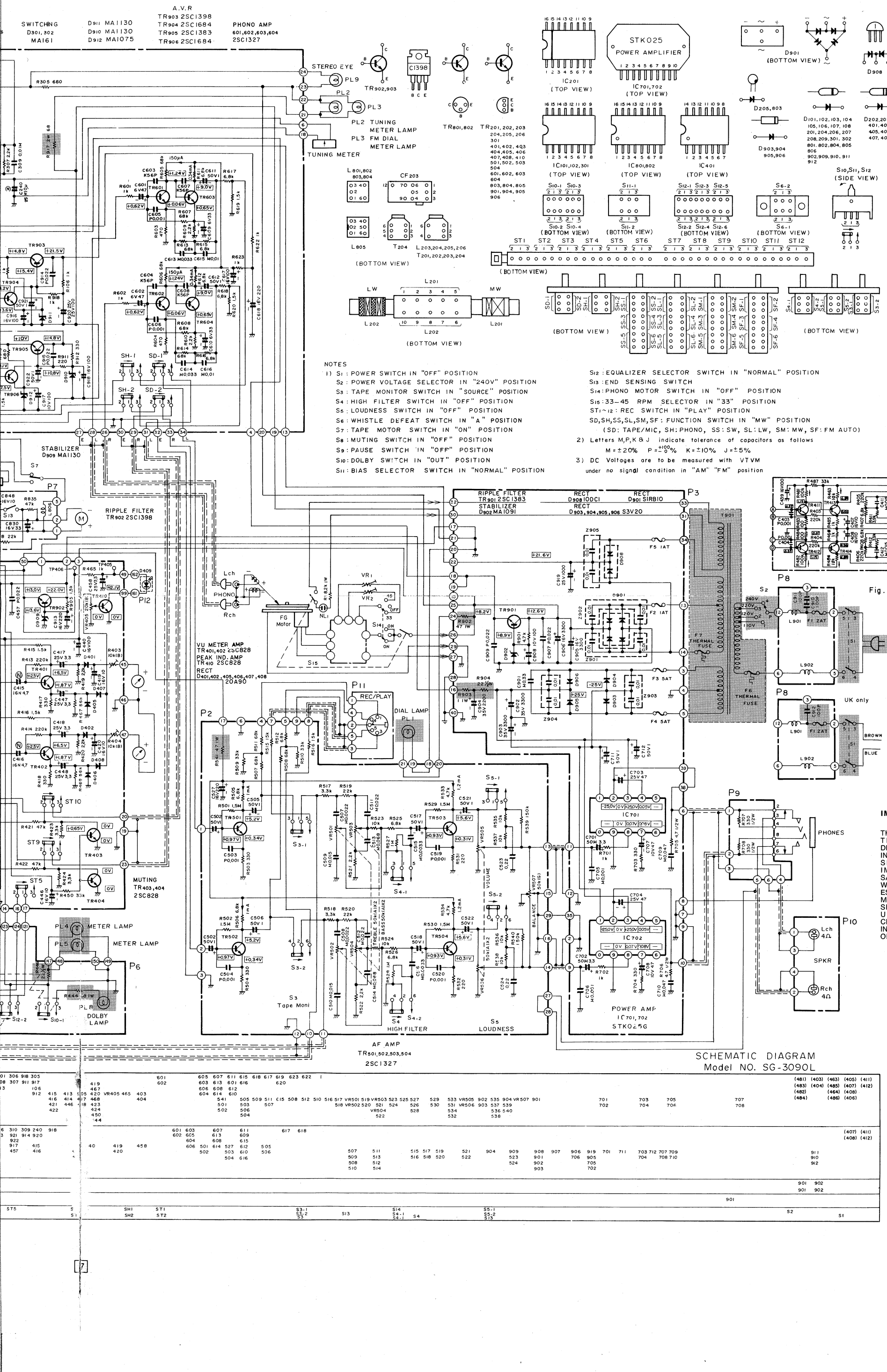
PL4 METER LAMP
PL5 METER LAMP

MUTING
TR403,404
2SC828

R	101 102 103 104 105 106 107 108 VR101 VR102 VR103 VR104 VR105 VR106 VR107 VR108 VR109 VR110 VR111 VR112 VR113 VR114 VR115 VR116 VR117 VR201 VR202 VR203 VR204 VR205 VR206 VR207 VR208 VR209 VR210 VR211 VR212 VR213 VR214 VR215 VR216 VR217 VR218 VR219 VR220 VR221 VR222 VR223 VR224 VR225 VR226 VR227 VR228 VR229 VR230 VR231 VR232 VR233 VR234 VR235 VR236 VR237 VR238 VR239 VR240 VR241 VR242 VR243 VR244 VR245 VR246 VR247 VR248 VR249 VR250 VR251 VR252 VR253 VR254 VR255 VR256 VR257 VR258 VR259 VR260 VR261 VR262 VR263 VR264 VR265 VR266 VR267 VR268 VR269 VR270 VR271 VR272 VR273 VR274 VR275 VR276 VR277 VR278 VR279 VR280 VR281 VR282 VR283 VR284 VR285 VR286 VR287 VR288 VR289 VR290 VR291 VR292 VR293 VR294 VR295 VR296 VR297 VR298 VR299 VR300 VR301 VR302 VR303 VR304 VR305 VR306 VR307 VR308 VR309 VR310 VR311 VR312 VR313 VR314 VR315 VR316 VR317 VR318 VR319 VR320 VR321 VR322 VR323 VR324 VR325 VR326 VR327 VR328 VR329 VR330 VR331 VR332 VR333 VR334 VR335 VR336 VR337 VR338 VR339 VR340 VR341 VR342 VR343 VR344 VR345 VR346 VR347 VR348 VR349 VR350 VR351 VR352 VR353 VR354 VR355 VR356 VR357 VR358 VR359 VR360 VR361 VR362 VR363 VR364 VR365 VR366 VR367 VR368 VR369 VR370 VR371 VR372 VR373 VR374 VR375 VR376 VR377 VR378 VR379 VR380 VR381 VR382 VR383 VR384 VR385 VR386 VR387 VR388 VR389 VR390 VR391 VR392 VR393 VR394 VR395 VR396 VR397 VR398 VR399 VR400 VR401 VR402 VR403 VR404 VR405 VR406 VR407 VR408 VR409 VR410 VR411 VR412 VR413 VR414 VR415 VR416 VR417 VR418 VR419 VR420 VR421 VR422 VR423 VR424 VR425 VR426 VR427 VR428 VR429 VR430 VR431 VR432 VR433 VR434 VR435 VR436 VR437 VR438 VR439 VR440 VR441 VR442 VR443 VR444 VR445 VR446 VR447 VR448 VR449 VR450 VR451 VR452 VR453 VR454 VR455 VR456 VR457 VR458 VR459 VR460 VR461 VR462 VR463 VR464 VR465 VR466 VR467 VR468 VR469 VR470 VR471 VR472 VR473 VR474 VR475 VR476 VR477 VR478 VR479 VR480 VR481 VR482 VR483 VR484 VR485 VR486 VR487 VR488 VR489 VR490 VR491 VR492 VR493 VR494 VR495 VR496 VR497 VR498 VR499 VR500 VR501 VR502 VR503 VR504 VR505 VR506 VR507 VR508 VR509 VR510 VR511 VR512 VR513 VR514 VR515 VR516 VR517 VR518 VR519 VR520 VR521 VR522 VR523 VR524 VR525 VR526 VR527 VR528 VR529 VR530 VR531 VR532 VR533 VR534 VR535 VR536 VR537 VR538 VR539 VR540 VR541 VR542 VR543 VR544 VR545 VR546 VR547 VR548 VR549 VR550 VR551 VR552 VR553 VR554 VR555 VR556 VR557 VR558 VR559 VR560 VR561 VR562 VR563 VR564 VR565 VR566 VR567 VR568 VR569 VR570 VR571 VR572 VR573 VR574 VR575 VR576 VR577 VR578 VR579 VR580 VR581 VR582 VR583 VR584 VR585 VR586 VR587 VR588 VR589 VR590 VR591 VR592 VR593 VR594 VR595 VR596 VR597 VR598 VR599 VR600 VR601 VR602 VR603 VR604 VR605 VR606 VR607 VR608 VR609 VR610 VR611 VR612 VR613 VR614 VR615 VR616 VR617 VR618 VR619 VR620 VR621 VR622 VR623 VR624 VR625 VR626 VR627 VR628 VR629 VR630 VR631 VR632 VR633 VR634 VR635 VR636 VR637 VR638 VR639 VR640 VR641 VR642 VR643 VR644 VR645 VR646 VR647 VR648 VR649 VR650 VR651 VR652 VR653 VR654 VR655 VR656 VR657 VR658 VR659 VR660 VR661 VR662 VR663 VR664 VR665 VR666 VR667 VR668 VR669 VR670 VR671 VR672 VR673 VR674 VR675 VR676 VR677 VR678 VR679 VR680 VR681 VR682 VR683 VR684 VR685 VR686 VR687 VR688 VR689 VR690 VR691 VR692 VR693 VR694 VR695 VR696 VR697 VR698 VR699 VR700 VR701 VR702 VR703 VR704 VR705 VR706 VR707 VR708 VR709 VR710 VR711 VR712 VR713 VR714 VR715 VR716 VR717 VR718 VR719 VR720 VR721 VR722 VR723 VR724 VR725 VR726 VR727 VR728 VR729 VR730 VR731 VR732 VR733 VR734 VR735 VR736 VR737 VR738 VR739 VR740 VR741 VR742 VR743 VR744 VR745 VR746 VR747 VR748 VR749 VR750 VR751 VR752 VR753 VR754 VR755 VR756 VR757 VR758 VR759 VR760 VR761 VR762 VR763 VR764 VR765 VR766 VR767 VR768 VR769 VR770 VR771 VR772 VR773 VR774 VR775 VR776 VR777 VR778 VR779 VR780 VR781 VR782 VR783 VR784 VR785 VR786 VR787 VR788 VR789 VR790 VR791 VR792 VR793 VR794 VR795 VR796 VR797 VR798 VR799 VR800 VR801 VR802 VR803 VR804 VR805 VR806 VR807 VR808 VR809 VR810 VR811 VR812 VR813 VR814 VR815 VR816 VR817 VR818 VR819 VR820 VR821 VR822 VR823 VR824 VR825 VR826 VR827 VR828 VR829 VR830 VR831 VR832 VR833 VR834 VR835 VR836 VR837 VR838 VR839 VR840 VR841 VR842 VR843 VR844 VR845 VR846 VR847 VR848 VR849 VR850 VR851 VR852 VR853 VR854 VR855 VR856 VR857 VR858 VR859 VR860 VR861 VR862 VR863 VR864 VR865 VR866 VR867 VR868 VR869 VR870 VR871 VR872 VR873 VR874 VR875 VR876 VR877 VR878 VR879 VR880 VR881 VR882 VR883 VR884 VR885 VR886 VR887 VR888 VR889 VR890 VR891 VR892 VR893 VR894 VR895 VR896 VR897 VR898 VR899 VR900 VR901 VR902 VR903 VR904 VR905 VR906 VR907 VR908 VR909 VR910 VR911 VR912 VR913 VR914 VR915 VR916 VR917 VR918 VR919 VR920 VR921 VR922 VR923 VR924 VR925 VR926 VR927 VR928 VR929 VR930 VR931 VR932 VR933 VR934 VR935 VR936 VR937 VR938 VR939 VR940 VR941 VR942 VR943 VR944 VR945 VR946 VR947 VR948 VR949 VR950 VR951 VR952 VR953 VR954 VR955 VR956 VR957 VR958 VR959 VR960 VR961 VR962 VR963 VR964 VR965 VR966 VR967 VR968 VR969 VR970 VR971 VR972 VR973 VR974 VR975 VR976 VR977 VR978 VR979 VR980 VR981 VR982 VR983 VR984 VR985 VR986 VR987 VR988 VR989 VR990 VR991 VR992 VR993 VR994 VR995 VR996 VR997 VR998 VR999
C	101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999
L	201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999
T	201 202 203 204
SW	SF1 ST1 ST3 SF2 SF5 S6 SS-3 SL-5 ST8 SS-5 S11 SM-5 SF-6 ST11 SL-4 SM-3 SM-2 SL-2 SL-1 S8 SF3 S13 S7 ST5 S SH1 ST1 SL-3 ST6 SL-6 SM-6 ST12 SS-1 SS-2 S9 SF4 S10 SM-1 S12 SH2 ST2 SS-4 ST7 SM-4

* This diagram might be modified without notice for further development of technology.

IAGRAM OF MODEL SG-3090L



NOTES

1) S1 : POWER SWITCH IN "OFF" POSITION
   S2 : POWER VOLTAGE SELECTOR IN "240V" POSITION
   S3 : TAPE MONITOR SWITCH IN "SOURCE" POSITION
   S4 : HIGH FILTER SWITCH IN "OFF" POSITION
   S5 : LOUDNESS SWITCH IN "OFF" POSITION
   S6 : WHISTLE DEFEAT SWITCH IN "A" POSITION
   S7 : TAPE MOTOR SWITCH IN "ON" POSITION
   S8 : MUTING SWITCH IN "OFF" POSITION
   S9 : PAUSE SWITCH IN "OFF" POSITION
   S10 : DOLBY SWITCH IN "OUT" POSITION
   S11 : BIAS SELECTOR SWITCH IN "NORMAL" POSITION
   S12 : EQUALIZER SELECTOR SWITCH IN "NORMAL" POSITION
   S13 : END SENSING SWITCH
   S14 : PHONO MOTOR SWITCH IN "OFF" POSITION
   S15 : 33-45 RPM SELECTOR IN "33" POSITION
   ST1~12 : REC SWITCH IN "PLAY" POSITION
   SD, SH, SS, SL, SM, SF : FUNCTION SWITCH IN "MW" POSITION
   (SD: TAPE/MIC, SH: PHONO, SS: SW, SL: LW, SM: MW, SF: FM AUTO)
2) Letters M, P, K & J indicate tolerance of capacitors as follows
   M = ±20% P = +100 −0% K = ±10% J = ±5%
3) DC Voltages are to be measured with VTVM
   under no signal condition in "AM" "FM" position

IMPORTANT SAFETY NOTICE

THE SHADED AREA ON THIS SCHEMATIC DIAGRAM INCORPORATES SPECIAL FEATURES IMPORTANT FOR SAFETY.
WHEN SERVICING IT IS ESSENTIAL THAT ONLY MANUFACTURER'S SPECIFIED PARTS BE USED FOR THE CRITICAL COMPONENTS IN THE SHADED AREAS OF THE SCHEMATIC.

SCHEMATIC DIAGRAM
Model NO. SG-3090L

Fig. 1

SG-3090L

WIRING DIAGRAM OF MO

FM EXT ANT

FM ANT
WHITE → To P1- (2)
ORANGE → To P1- (1)

AM ANT
BLACK → To P1- (5)
VIOLET → To P1- (35)

ORANGE → To P8- [3]

IC701, IC702

1	- 25.0V
2	0 V
3	25.0V
4	0.05V
5	—
6	—
7	0.08V
8	0.07V
9	0 V
10	—

REC/PLAY

P11
YELLOW → To P2- (4)
SKY-BLUE → To P2- (5)
To P2- (8)
To P2- (7)
To P2- (9)

To P2- (13)
To P2- (15)

IC301

	EYE OFF	EYE ON
1	12.8V	12.8V
2	2.68V	2.66V
3	4.59V	4.59V
4	4.47V	11.2V
5	11.1V	11.2V
6	1.02V	1.04V
7	0 V	0 V
8	0.32V	0.32V
9	6.2V	6.2V
10	2.03V	2.05V
11	2.05V	2.07V
12	2.27V	0.97V
13	2.30V	2.04V
14	2.29V	2.04V
15	2.05V	2.04V
16	2.67V	2.67V

TR901

C	12.6V
B	8.9V
E	8.2V
Ic	—

TR902

C	22.0V
B	13.6V
E	13.0V
Ic	—

To P2- (20)
To P2- (18)
To P1- (4)
To P1- (14)
To P1- (13)

RED
BLACK
ORANGE

To S2-P

P2

IC702
IC701
IC201
FM TUNER
IC101
IC102
IC301
TR901
TR902
TR903
TR904
TR905
TR906
TR907
TR101~107
TR201
TR202
TR203
TR204
TR205
TR206
TR301
TR602
TR603
TR604

F2 F3 F4 F5

BLACK
BLACK
BLACK
BLUE → To POWER TRANSFORMER(2nd)
BLACK → To POWER TRANSFORMER(2nd)
BLUE → To POWER TRANSFORMER(2nd)

To P2- (14)
To P2- (16)
To P2- (22)
LUG-B (GND)

BLACK → To P9- (7)
To P9- (1)
To P9- (6)
To P9- (2)
To P2- (28)

WHITE
YELLOW
To POWER TRANSFORMER (2nd)
To POWER TRANSFORMER

BLACK
PINK
BLACK → To P4- (1)
PINK → To P4- (2)
RED → To P4- (3)

RED → To POWER TRANSFORMER (2nd)
BROWN → To POWER TRANSFORMER (2nd)
BROWN → To POWER TRANSFORMER (2nd)
GREEN → LUG-A (GND)

To PH
GRAY
BROWN

To P3- (15) RED
To P3- (16) PINK
To P3- (17) BLACK

ST1~ST11
REC SWITCH

To P6- (25)
To P6- (21)
To P6- (24)
To P6- (20)
To P6- (23)

To P6- (29)
To P6- (30)

FM DIAL METER
FM TUNING METER
PL9
STEREO EYE

To P1- (37) ORANGE
SKY-BLUE → To P1- (12)
BLACK → To P1- (11)

To FM ANT TERMINAL-1 WHITE
To FM ANT TERMINAL-2 ORANGE

To P1- (36) SKY-BLUE
ORANGE → To P3- (18)
BLACK → To AM ANT TERMINAL-1

BLACK → To FM DIAL METER ⊖
SKY-BLUE → To FM DIAL METER ⊕

To P3- (21)
To P3- (22)

VR101 20kB → To P1- (9)

TR603, TR604

C	9.0V
B	1.24V
E	0.65V
Ic	0.25mA

To P10- (5)
To P10- (3)
To P10- (2)
To P10- (4)
To P10- (1)

SKY-BLUE
YELLOW

TR601, TR602

C	1.24V
B	0.62V
E	0.06V
Ic	85μA

ORANGE → To P5

To P4- (23)
To P4- (20)
To P4- (19)

RED
WHITE
BLACK
GRAY
BROWN

VIOLET → To AM ANT TERMINAL-2

To P5- (17)
To P5- (18)
To P5- (16)

IC201

	FM	AM
1	0.8V	0.8V
2	0 V	0 V
3	2.7V	2.8V
4	6.3V	6.5V
5	1.07V	0.83V
6	0 V	0 V
7	1.08V	0.9V
8	7.5V	7.8V
9	0.8V	7.3V
10	0.8V	1.46V
11	0.78V	0.79V
12	0.87V	7.3V
13	0.55V	0.73V
14	0.86V	1.48V
15	0.87V	7.3V
16	0.55V	0.73V

IC101

1	13.9V
2	13.9V
3	13.9V
4	13.9V
5	0V
6	0.67V
7	1.07V
8	1.07V
9	1.07V
10	14.0V
11	(14.0V)
12	(14.0V)
13	(14.0V)
14	(14.0V)
15	14.9V
16	3.6V

IC102

1	13.9V
2	13.9V
3	13.9V
4	13.9V
5	0V
6	—
7	1.07V
8	1.07V
9	1.07V
10	1.07V
11	(14.0V)
12	(14.0V)
13	(14.0V)
14	(14.0V)
15	14.9V
16	3.6V

P6 P5 P4 P3 P2 P1 MANUAL
FM PRESET

SF1~6 FM AUTO SWITCH
SM1~6 MW SWITCH
SL1~6 LW SWITCH
SS1~6 SW SWITCH
SH1,2 PHONO SWITCH
ST1,2 TAPE/MIC SWITCH

S3 TAPE MONITOR SWITCH
S5 LOUDNESS SWITCH

TR905

C	14.8V
B	10.8V
E	10.2V

TR906

C	10.8V
B	8.1V
E	7.5V

TR101~107

C	10.2V
B	0.9V
E	0V

TR201

C	7.3V
B	2.19V
E	1.55V
Ic	—

TR205

C	0V
B	0.67V
E	0V
Ic	—

TR206

C	0V
B	0.79V
E	0V
Ic	—

TR203

C	0V
B	0V
E	0V
Ic	—

TR204

C	0V
B	0V
E	0V
Ic	—

* This diagram might be modified without notice for further development of technology.

RAM OF MODEL SG-3090L

TR902	
C	22.0V
B	13.6V
E	13.0V
Ic	—

TR803	
C	6.4V
B	1.9V
E	1.31V
Ic	—

TR403,TR404	
C	0V
B	0.65V
E	0V
Ic	—

TR804	
C	0V
B	0.7V
E	0V
Ic	—

TR805	
C	12.0V
B	0V
E	0V
Ic	—

(For UK only)
BLUE
BROWN
To S1-4
To S1-3
AC CORD
To S1-3,4
SPEAKERS
R
L
P10
To P9-4
To P9-3
To P9-5
To P9-27
To P2
S6 WHISTLE DEFEAT SWITCH
S6-2
S6-1
S2 POWER VOLTAGE SELECTOR SWITCH
BROWN
RED
YELLOW
WHITE
ORANGE
To P1-12
P8
L901
L902
C910 100P
C912 100P
C911 100P
F1
To S2-P
YELLOW
To FM EXT ANT
ORANGE
BROWN
To S1-2
BLUE
To S1-1
TR802

C	0.27V
B	13.2V
E	13.5V
Ic	—

PRIMARY
T901
POWER TRANSFORMER
SECONDARY
BLUE To P3-3
BLUE To P3-5
BLACK To P3-4
YELLOW To P3-14
RED To P3-34
BROWN To P3-33
BROWN To P3-31
WHITE To P3-13
TR801

C	0V
B	13.3V
E	13.1V
Ic	—

ST1~ST11
REC SWITCH
To P6-25 BLACK
To P6-21 BLUE
To P6-24 BROWN
To P6-20 PINK
To P6-23 RED
To P5-103
To P5-104
To P5-102
To P1-31
To P1-29
To P1-30
To P6-32
To P6-33
To P6-31
To P6-128
P4
To P4-47
To P4-46
To P4-45
VU METER RIGHT
VU METER LEFT
SKY-BLUE
BLACK
YELLOW
VIOLET
To P4-77
To P4-75
To P4-76
S12 EQUALIZER SELECTOR SWITCH
WHITE
To P4-28
To P4-27
To P4-67
To P4-70
To P4-68
To P4-85
To P4-87
To P4-86 PL6 REC LAMP
BLACK To P4-18
BLUE To P4-17 PL8 DOLBY LAMP
BROWN To P4-16 PL7 Cr O2 LAMP
PINK To P4-15 PL4,5 METER LAMP
P6
RED To P4-14
S10 S12-5 S12-6 S12-3 S12-4 S12-1 S12-2 S11-1 S11-2 S10-3 S10-4 S10-1 S10-2
R827 150(1W)
R445 47(1W)
PL8 PL6 PL5 PL4 PL7
R446 22(1W)
R444 68(1W)
To P4-64
To P4-60
To P4-57 GRAY
PINK
To MC-6
S11 BIAS SELECTOR SWITCH
S10 DOLBY SWITCH
PLUNGER-A
BROWN
ERASE HEAD
R/P HEAD
WHITE
RED
BROWN
To MC-7
To MC-9
BLUE
RED
PINK
SKY-BLUE
P7
RED
S7 TAPE MOTOR SWITCH
VIOLET
SKY-BLUE
BLACK
ORANGE
To MC-8
To P4-82
PINK
ORANGE
To P4-22
To P4-21
S8 MUTING SWITCH
To P4-59
To P4-58
To P4-56
To P2-10
To P2-11
To P2-12
P5
R707 330 1/2W
R708 330Ω 1/2W
P9
To P8-2
To P8-5
BROWN
BLUE
S1 POWER SWITCH
BLUE
BLACK
S9 PAUSE SWITCH
WHITE
To P3-8
To P10-1
To P10-3
To P3-42
BLACK
BLACK
To P4-74
To P4-73
To P4-72
CASSETTE MOTOR
VIOLET
TR410

C	12.1V
B	0V
E	0V
Ic	—

To AC CORD
ORANGE
To P4-23
To P4-20
To P4-19
TR603,TR604

C	9.0V
B	1.24V
E	0.65V
Ic	0.25mA

To P10-5
To P10-3
To P10-2
To P10-4
To P10-1
SKY-BLUE
YELLOW
PL1 DIAL POINTER
To P2-20
To P2-24
BLACK
RED
TR405,TR406

C	9.7V
B	3.2V
E	2.5V
Ic	—

TR401,TR402

C	6.5V
B	2.5V
E	1.87V
Ic	—

P2
WHITE
RED
To P5-113
To P5-112
To P5-110
To P6-145
To P6-146
To P6-142
To P6-141
To P3-1
To P3-2
To P3-11
To P3-12
To P3 10
To P3-7
To P10-2
To P10-4
To P3-6
To P3-37
HEADPHONES
MIC JACK
RED
WHITE
S3 TAPE MONITOR SWITCH
S5 LOUDNESS SWITCH
S4 HIGH FILTER SWITCH
VR501,502 TREBLE CONTROL
VR503,504 BASS CONTROL
VR507 BALANCE CONTROL
VR505,506 VOLUME CONTROL
VR452 REC LEVEL CONTROL (RIGHT)
VR451 REC LEVEL CONTROL (RIGHT)
TR501,TR502

C	5.2V
B	0.97V
E	0.34V
Ic	1mA

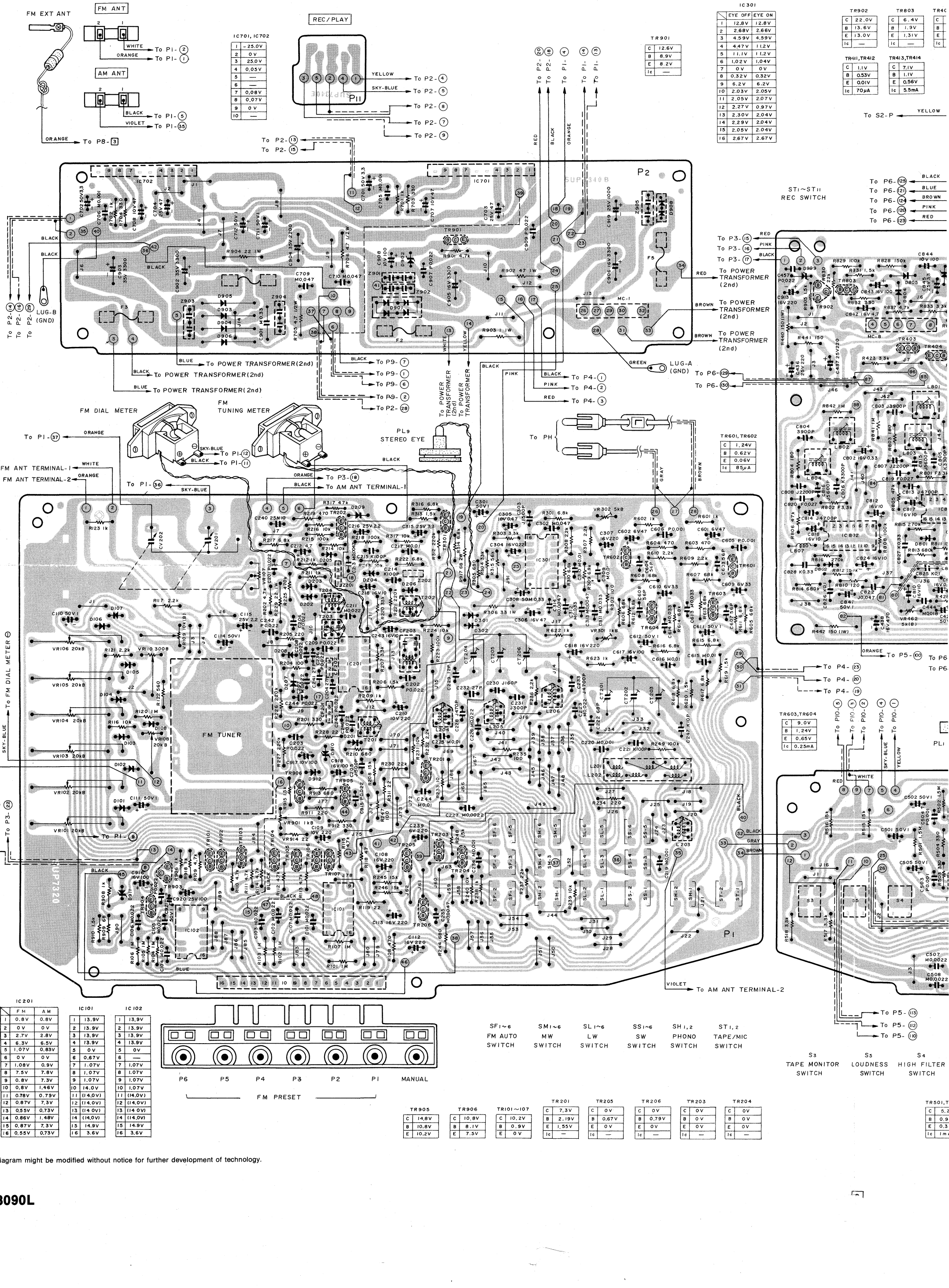
TR503,TR504

C	5.6V
B	0.93V
E	0.31V
Ic	1.2mA

TR407,TR408

C	3.29V
B	0.96V
E	0.35V
Ic	—

WIRING DIAGRAM (DISCRETE CIRCUIT



IC701, IC702

1	-25.0V
2	0 V
3	25.0V
4	0.05V
5	—
6	—
7	0.08V
8	0.07V
9	0 V
10	—

IC301

	EYE OFF	EYE ON
1	12.8V	12.8V
2	2.68V	2.66V
3	4.59V	4.59V
4	4.47V	11.2V
5	11.1V	11.2V
6	1.02V	1.04V
7	0 V	0 V
8	0.32V	0.32V
9	6.2V	6.2V
10	2.03V	2.05V
11	2.05V	2.07V
12	2.27V	0.97V
13	2.30V	2.04V
14	2.29V	2.04V
15	2.05V	2.04V
16	2.67V	2.67V

TR901

C	12.6V
B	8.9V
E	8.2V
Ic	—

TR902

C	22.0V
B	13.6V
E	13.0V
Ic	—

TR803

C	6.4V
B	1.9V
E	1.31V
Ic	—

TR411, TR412

C	1.1V
B	0.53V
E	0.01V
Ic	70μA

TR413, TR414

C	7.1V
B	1.1V
E	0.56V
Ic	5.5mA

TR601, TR602

C	1.24V
B	0.62V
E	0.06V
Ic	85μA

TR603, TR604

C	9.0V
B	1.24V
E	0.65V
Ic	0.25mA

IC201

	FM	AM
1	0.8V	0.8V
2	0 V	0 V
3	2.7V	2.8V
4	6.3V	6.5V
5	1.07V	0.83V
6	0 V	0 V
7	1.08V	0.9V
8	7.5V	7.8V
9	0.8V	7.3V
10	0.8V	1.46V
11	0.78V	0.79V
12	0.87V	7.3V
13	0.55V	0.73V
14	0.86V	1.48V
15	0.87V	7.3V
16	0.55V	0.73V

IC101

1	13.9V
2	13.9V
3	13.9V
4	13.9V
5	0V
6	0.67V
7	1.07V
8	1.07V
9	1.07V
10	14.0V
11	(14.0V)
12	(14.0V)
13	(14.0V)
14	(14.0V)
15	14.9V
16	3.6V

IC102

1	13.9V
2	13.9V
3	13.9V
4	13.9V
5	0V
6	—
7	1.07V
8	1.07V
9	1.07V
10	1.07V
11	(14.0V)
12	(14.0V)
13	(14.0V)
14	(14.0V)
15	14.9V
16	3.6V

TR905

C	14.8V
B	10.8V
E	10.2V

TR906

C	10.8V
B	8.1V
E	7.5V

TR101~107

C	10.2V
B	0.9V
E	0V

TR201

C	7.3V
B	2.19V
E	1.55V
Ic	—

TR205

C	0V
B	0.67V
E	0V
Ic	—

TR206

C	0V
B	0.79V
E	0V
Ic	—

TR203

C	0V
B	0V
E	0V
Ic	—

TR204

C	0V
B	0V
E	0V
Ic	—

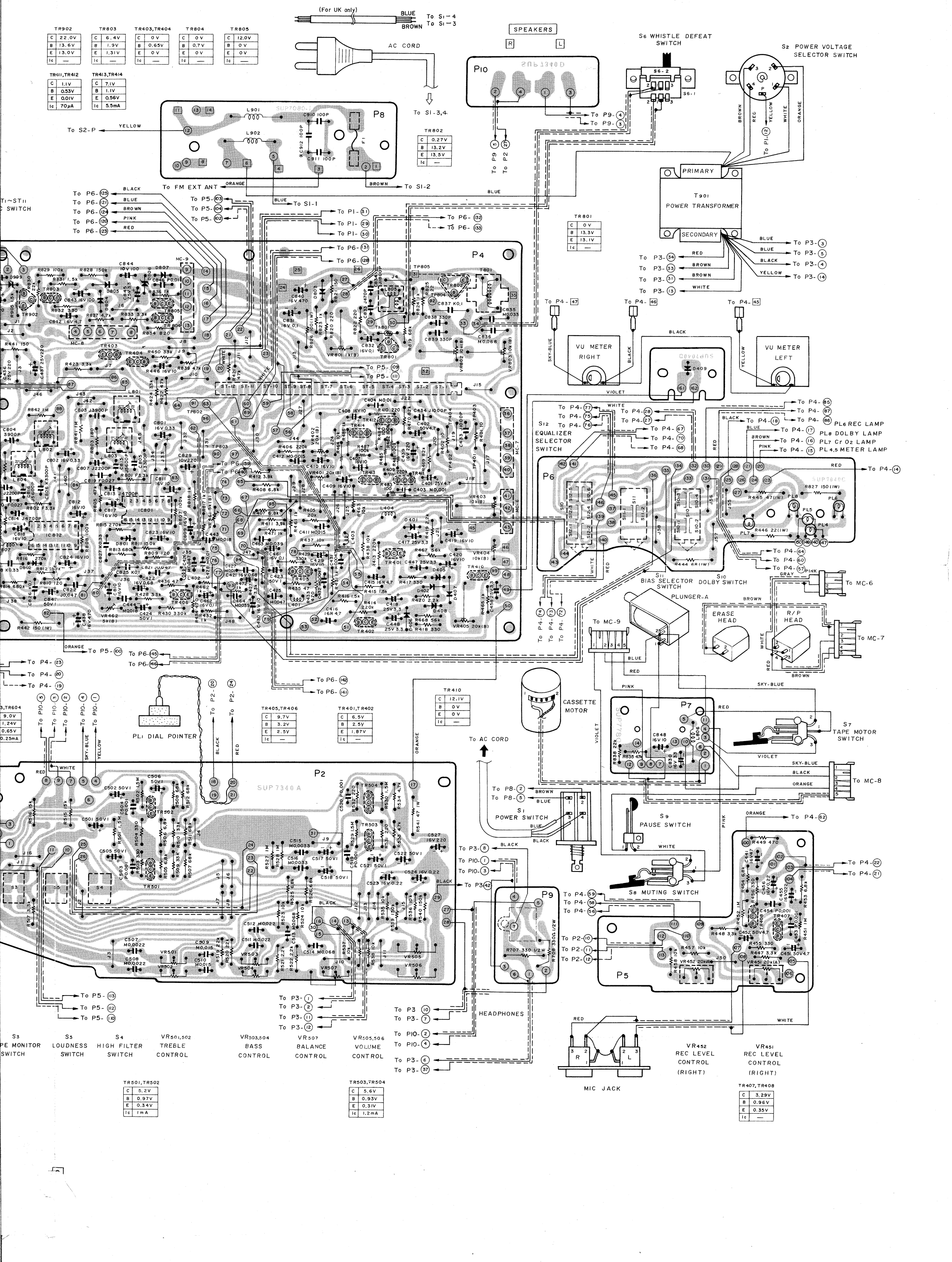
TR501,T

C	5.2
B	0.9
E	0.3
Ic	1m

* This diagram might be modified without notice for further development of technology.

SG-3090L

RETE CIRCUIT OF MODEL SG-3090L)



ALIGNMENT INSTRUCTIONS (RADIO)—3

■ FM RF ALIGNMENT

Notes:
1. Volume Control ..... Maximum
2. Bass and Treble Control ..... Center
3. Balance Control ..... Center
4. Band Selector ..... FM AUTO
5. FM Sensor Touch Button ..... MANUAL, P1, P2, P3, P4, P5, P6
6. FM Preset VR (VR101~106) ..... Turn them fully counterclockwise.

STEP	SIGNAL GENERATOR		RADIO DIAL SETTING	INDICATOR (VTVM or SCOPE)	FM SENSOR TOUCH BUTTON	ADJUST	REMARKS
	CONNECTION	FREQUENCY					
1	t3Connect to EXT. FM antenna terminal through dummy antenna. Common to chassis. (Refer to Fig. 14)	I06 MHz 30% Mod. with 400 Hz	106 MHz	Output meter across speaker jack (L) (Imp. 4Ω)	MANUAL	VR901	Adjust for maximum output.
2	Connect to EXT. FM antenna terminal through dummy antenna. Common to chassis. (Refer to Fig. 14)	87.5 MHz 30% Mod. with 400 Hz	Turn them fully counterclockwise.	Output meter across speaker jack (L) (Imp. 4Ω)	MANUAL	VR109	Adjust for maximum output.
3	Connect to EXT. FM antenna terminal through dummy antenna. Common to chassis. (Refer to Fig. 14)	87.5 MHz 30% Mod. with 400 Hz	Turn them fully counterclockwise.	Output meter across speaker jack (L) (Imp. 4Ω)	P1	VR110	Adjust for maximum output. Repeat step (2).
4	Connect to EXT. FM antenna terminal through dummy antenna. Common to chassis. (Refer to Fig. 14)	106 MHz 30% Mod. with 400 Hz	106 MHz	Output meter across speaker jack (L) (Imp. 4Ω)	P1	VR101	Adjust for maximum output.
5	Connect to EXT. FM antenna terminal through dummy antenna. Common to chassis. (Refer to Fig. 14)	106 MHz 30% Mod. with 400 Hz	106 MHz	FM Dial Meter	P1	VR108	Adjust for 106 MHz indication reading on meter. Repeat steps (1)~(4).

Notes: **1. Before aligning step 1, turn the cores of VR108, VR109, VR110, and VR901 fully counterclockwise.**
2. FM Tuner is pre-aligned. Do not touch it.

Caution: To correct the drift of FM band coverage (87.5 ~ 108 MHz), adjust VR108, VR109, VR110 and VR901.

■ FM STEREO ALIGNMENT

Notes: Tuner:
- Volume Control ..... Audible level of speaker sound
- Treble Control ..... MIN
- Bass Control ..... Center
- Band Selector ..... FM AUTO
- Balance Control ..... Center
- FM Sensor Touch Button ..... MANUAL

EQUIPMENT CONNECTION	ADJUST	REMARKS
Connect frequency counter to TP6 and ground at no signal condition.	VR302 (VCO)	Adjust VR302 for 19 kHz ±100 Hz on frequency counter reading.

SEPARATION ALIGNMENT

Notes:
1. Stereo Modulator: Connect Stereo Modulator to EXT. Mod. terminal of signal generator.
2. Signal Generator:
   - Modulation Rate of 19 kHz Pilot Signal 10%
   - Modulation Rate of Right and Left Signal 27%
   - Output Level ..... 60 dB
3. Tuner (Balance Control): Adjust balance control so that output level from both channels becomes equal.

EQUIPMENT CONNECTION			ADJUST	REMARKS
SIGNAL GENERATOR	VTVM	OSCILLOSCOPE		
Connect to EXT. FM antenna terminal through dummy antenna. (Refer to Fig. 14)	Connect across speaker jack. (Imp. 4Ω)	Connect vertical amp. input of scope to terminals of VTVM.	VR301 (Separation Control)	Adjust VR301 for minimum indication of VTVM from the left side output when the right side of stereo modulator is modulated. Adjust VR301 in the same way for the right side. Adjust for best balance between "L to R" and "R to L" separation.

Note: When aligning separation, disconnect frequency counter.

ALIGNMENT INSTRUCTIONS (CASSETTE PLAYER/RECORDER)

Notes:
1. Function Selector ..... TAPE
2. Balance Control..... Center
3. Depress push buttons PLAY and REC at the same time. (Be sure to release the record safety lever manually.)
4. Dolby Switch ..... OUT

STEP	CIRCUITS	VTVM CONNECTION	TAPE SELECTOR	ADJUSTMENT	REMARKS
1	AC BIAS CIRCUIT	Connect positive side to TP804 (+) and negative side to TP805 (−). (Refer to Fig. 15)	Bias SW: Normal	L805	Adjust L805 for maximum indication on VTVM.
2	AC BIAS CIRCUIT	Connect positive side to TP804 and negative side to TP805. (Refer to Fig. 15)	Bias SW: CrO_2	VR801	Adjust VR801 for 12V reading on VTVM.
3	AC BIAS CIRCUIT	Connect positive side to TP401 and negative side to TP403. (Refer to Fig. 15)	Bias SW: Normal	VR803	Adjust VR803 and VR802 for 3.3 mV reading on VTVM.
		Connect positive side to TP402 and negative side to TP404. (Refer to Fig. 15)		VR802	
4	19 kHz TRAP CIRCUIT	Connect positive side to TP801 and negative side to TP803(E). (Refer to Fig. 15)	EQ SW: Normal	L803	Turn Function Selector to AUX and Dolby SW to IN. Apply audio signal (300 mV, 19 kHz) to both L-ch and R-ch AUX terminals. Adjust L803 and L804 for minimum indication on VTVM.
		Connect positive side to TP802 and negative side to TP804(E). (Refer to Fig. 15)		L804	
5	DOLBY CIRCUIT	Connect positive side to TP801 and negative side to TP803. (Refer to Fig. 15)	EQ SW: Normal	VR401	Turn Dolby SW to IN and playback a test tape (MTT-150). Adjust VR401 and VR402 for 580 mV reading on VTVM.
		Connect positive side to TP802 and negative side to TP803. (Refer to Fig. 15)		VR402	
6	VU METER CIRCUIT	.....	EQ SW: Normal	VR403, VR404	Turn Dolby SW to IN and playback a test tape (MTT-150). Adjust VR403 and VR404 so that needle rests at +3 dB (▯▯ mark) as shown in Fig. 16.
7	REC CURRENT CIRCUIT	Connect positive side to TP401 and negative side to TP403. (Refer to Fig. 15)	EQ SW: Normal	VR461	Connect TP804 to TP805. Turn Function Selector to AUX and Dolby SW to IN. Apply 1 kHz audio signal to both AUX terminals and set body REC VR's at **+3 dB** (▯▯ mark) on VU meter. Adjust VR461 and VR462 for 0.67 mV reading on VTVM.
		Connect positive side to TP402 and negative side to TP403. (Refer to Fig. 15)		VR462	
8	PEAK INDICATOR	Connect positive side to TP807 negative side to TP806. (Refer to Fig. 15) Use for DC VTVM.	EQ SW: Normal	VR405	Turn Dolby SW to IN and playback a test tape (MTT-150). Adjust VR405 for DC 1V reading on VTVM.

Notes:
1. **Do not touch R/P Head and Erase Head when aligning.**
2. **L801 and L802 are pre-aligned. Do not touch them.**
3. **MTT-150 is DOLBY LEVEL calibration tape.**

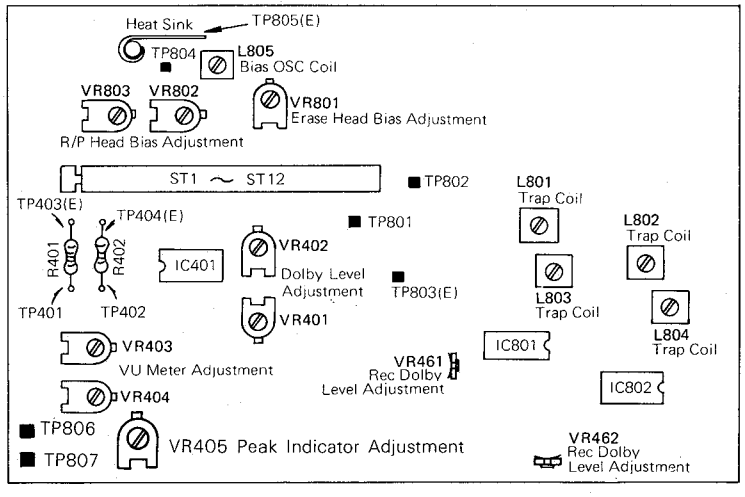


FIG. 15

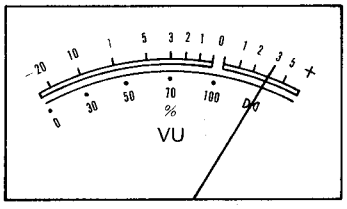


FIG. 16

*** Test Tape (6.3 kHz)**
VTT-652 or Equivalent

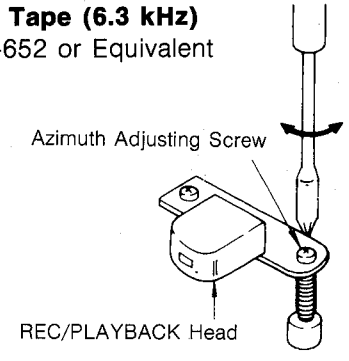


FIG. 17

RECORD/PLAYBACK HEAD AZIMUTH ADJUSTMENT
Playback a Standard Alignment Tape and turn Azimuth Adjusting Screw for maximum loudness.

MECHANICAL ADJUSTMENT OF CASETTE PLAYER/RECORDER

PRESSURE ROLLER ADJUSTMENT

1. Switch set to PLAY. (Do not insert cassette.)
2. Hook Spring gauge to arm pressure rollers, as shown in Fig. 18.
3. Pull pressure roller away from the capstan in the direction of arrow 1 with spring gauge and slowly permit the pressure roller to return forward capstan in the direction of arrow 2.
4. Measure tension at time when pressure roller makes contact with capstan (or when pressure roller starts rotating.)
5. The standard tension of pressure roller should be 250 ~ 380 g.
6. If pressure is not within these limits;
   Clean the rubber roller and capstan with a soft cloth moistened with alcohol or replace pressure spring.

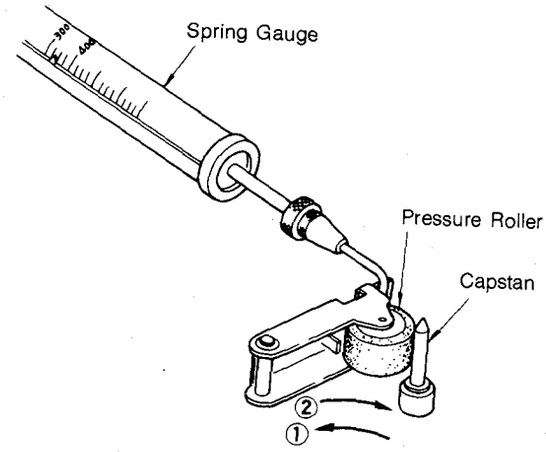


FIG. 18

TAKE-UP TORQUE ADJUSTMENT

* Test Tape: SRK-CT (Take-up Torque Meter)

1. Insert test tape.
2. Rewind the tape to its starting point.
3. Switch set to PLAY.
4. Read "▶" mark of indicator on take-up side, as shown in Fig. 19.
5. Repeat PLAY-STOP several times and read the average tension.
6. The standard take-up tension should be 30 ~ 70 g.cm.
   If take-up tension is not within these limits;
   a) Clean main belt, take-up reel and all parts which contact them with a cotton swab moistened with alcohol, and/or
   b) Switch set to "OFF", remove main belt and make sure that take-up reel and take-up clutch are rotating smoothly.
   c) Change take-up clutch tension by turning the friction spring under reel table, as shown in Fig. 20, and/or
   d) Replace take-up clutch.

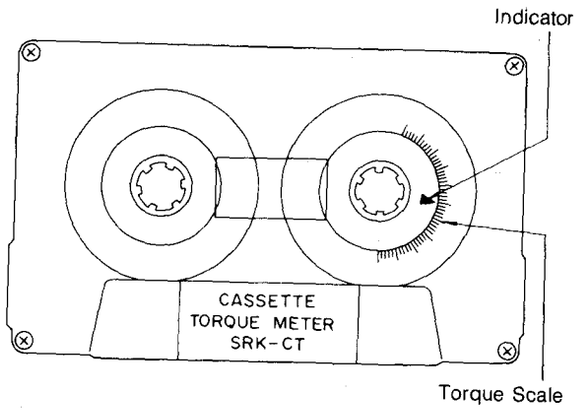


FIG. 19

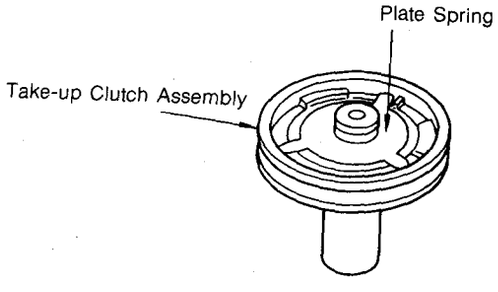


FIG. 20

DOLBY NOISE REDUCTION SYSTEM

GENERAL DESCRIPTION

The Dolby B-Type Noise Reduction System is used in this equipment, which reduces the level of background noise introduced during recording without changing the tone of audio signal.

METHOD OF DOLBY SYSTEM

Signal deviation of Dolby System is shown in Fig. 21.
Low level signal is recorded by boosting and is played back by attenuating as illustrated in the figure.
For example, following a level in Fig. 21:

1. When −30 dB REC signal is applied.
2. It is boosted to −20 dB and recorded on a magnetic head. [ENCODE]
3. Playing back this recorded tape (at −20 dB).
4. The output signal is boosted by Dolby System and reproduced at −30 dB, the same level as recorded. [RECODE]

Fig. 18 shows the boosting frequency characteristics. Generally, the signal deviation increases in proportion to the frequency.
At playback, the characteristics are curved symmetrically against the recording curve and the overall REC and PLAY curve flattens as shown in Fig. 23. This 0 dB is called Dolby Level, which is the flux level of the cassette tape and standardized at the point of 200 pwb/mm, and it is indicated by +3 VU on the VU meter of this equipment.

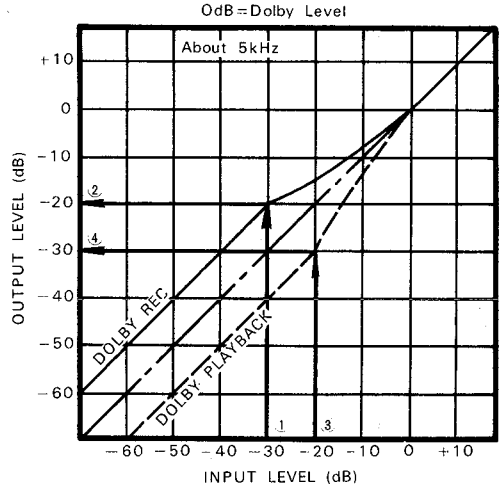


FIG. 21

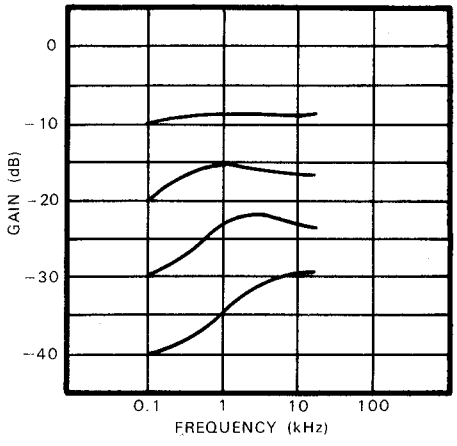


FIG. 22

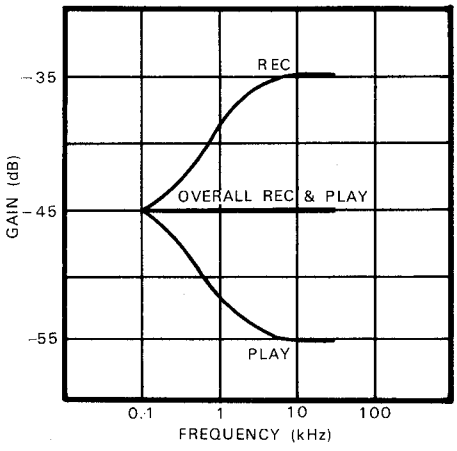


FIG. 23

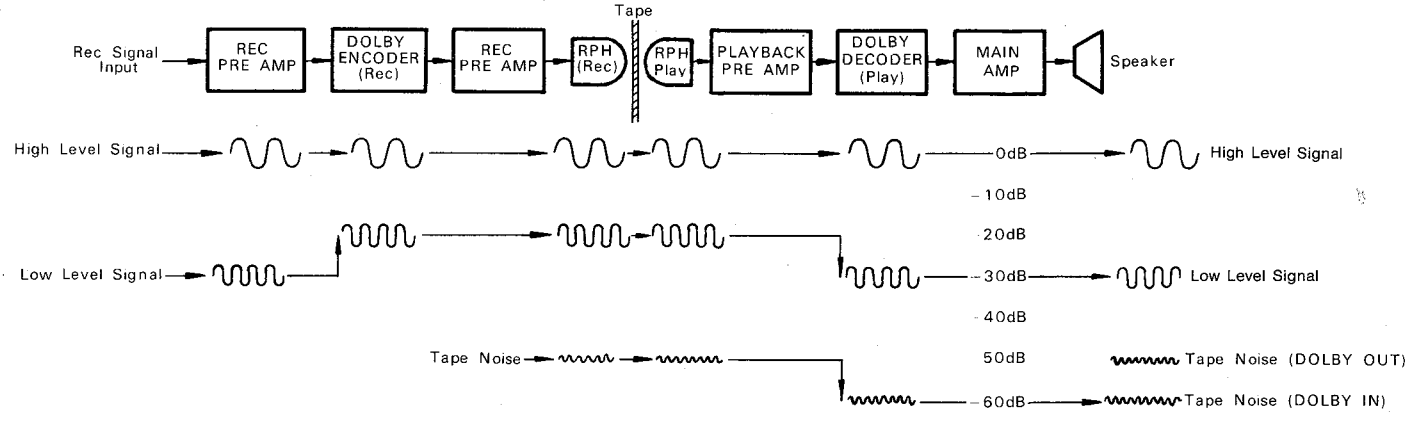


FIG. 24

DOLBY NOISE REDUCTION SYSTEM

PRINCIPLE OF NOISE REDUCTION

Much of the audible noise of a tape recorder is a hiss noise of high and medium frequency created when recording on a magnetic tape while some of it is playback amplifier noise.
A high input signal level suppresses noise but a low input signal level decreases S/N ratio and noise is easily heard.
For solving this problem as shown in Fig. 24, the Dolby System operates by boosting a low-level, high and medium frequency approx. 10 dB when recording, and attenuating the same signal in a complementary manner during playback.
During this process, the hiss noise of high and medium frequency and the amplifier noise are suppressed approx. 10 dB.
Fig. 25 shows noise reduction in Dolby IN/OUT.

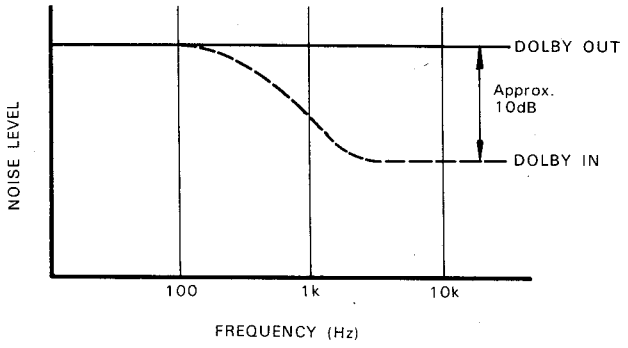


Fig. 25

CIRCUIT OPERATION

The operation of Noise Reduction System is shown in the block diagram of Fig. 26. By turning ST1, ST8, S10-4 and ST11 to REC/PLAY, this circuit operates on ENCODE/DECODE.
[ENCODE] : ST1, ST8 and ST11 in REC position.
Recording signal is applied to REC AMP and passes through AMP "A" of Dolby IC and the low-pass-filter "LPF", and then it enters AMP "B". LPF attenuates unwanted frequencies such as tape recorder bias or FM MPX sub. carrier signals to the level which will not influence the Dolby circuit operation. The output signal of AMP "B" is divided into two paths; one is directly supplied to ADDER "E", which is called a direct signal, while the other controls the noise reduction signal. This signal, passing through ST11, S10-4, high-pass-filter "HPF", variable resistance "F" and AMP "C", enters ADDER "E" and increases the direct signal.
As a result, REC signal from INVERTER "K" is boosted.
[DECODE] : Essentially the same circuitry.
ST1, ST8 and ST11 in PLAY position.

Playback signal from the playback head "RPH" is aplied to PLAYBACK PRE AMP and passes through ST8, AMP "A" of Dolby IC, "LPF" and AMP "B", and then it enters ADDER "E" as the direct signal. One part of output signal from INVERTER "K", passing through ST11, is supplied to MAIN AMP, and the other, as Noise Reduction Signal, passes through S10-4, "HPF".
Variable Resistance "F" and AMP "C", are applied to ADDER "E" in opposite phase. As a result, the level of the playback signal is attenuated. This circuit operates to boost at REC position [ENCODE] and to attenuate at PLAY position [DECODE].
"G" is the rectifying and smoothing circuit of Noise Reduction Signal and controls Variable Resistance "F". And "F" and "HPF" compose the dynamic high pass filter, and control the boosting and attenuating degree of high and medium frequency in response to the signal level (Figs. 22 and 23). "T" is the circuit setting the response time of Dolby.

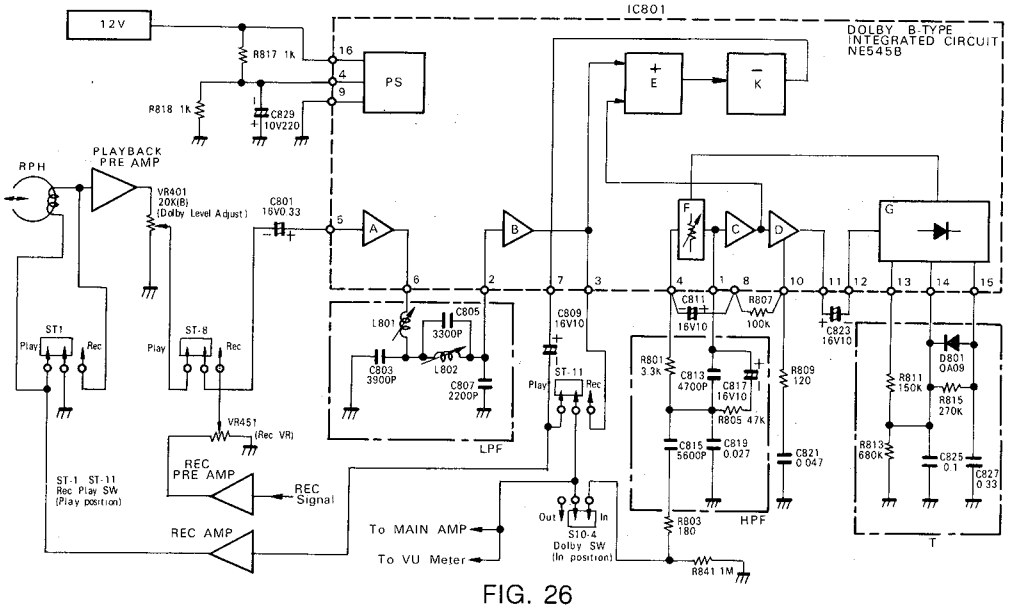


FIG. 26

EXPLODED VIEW OF RECORD PLAYER

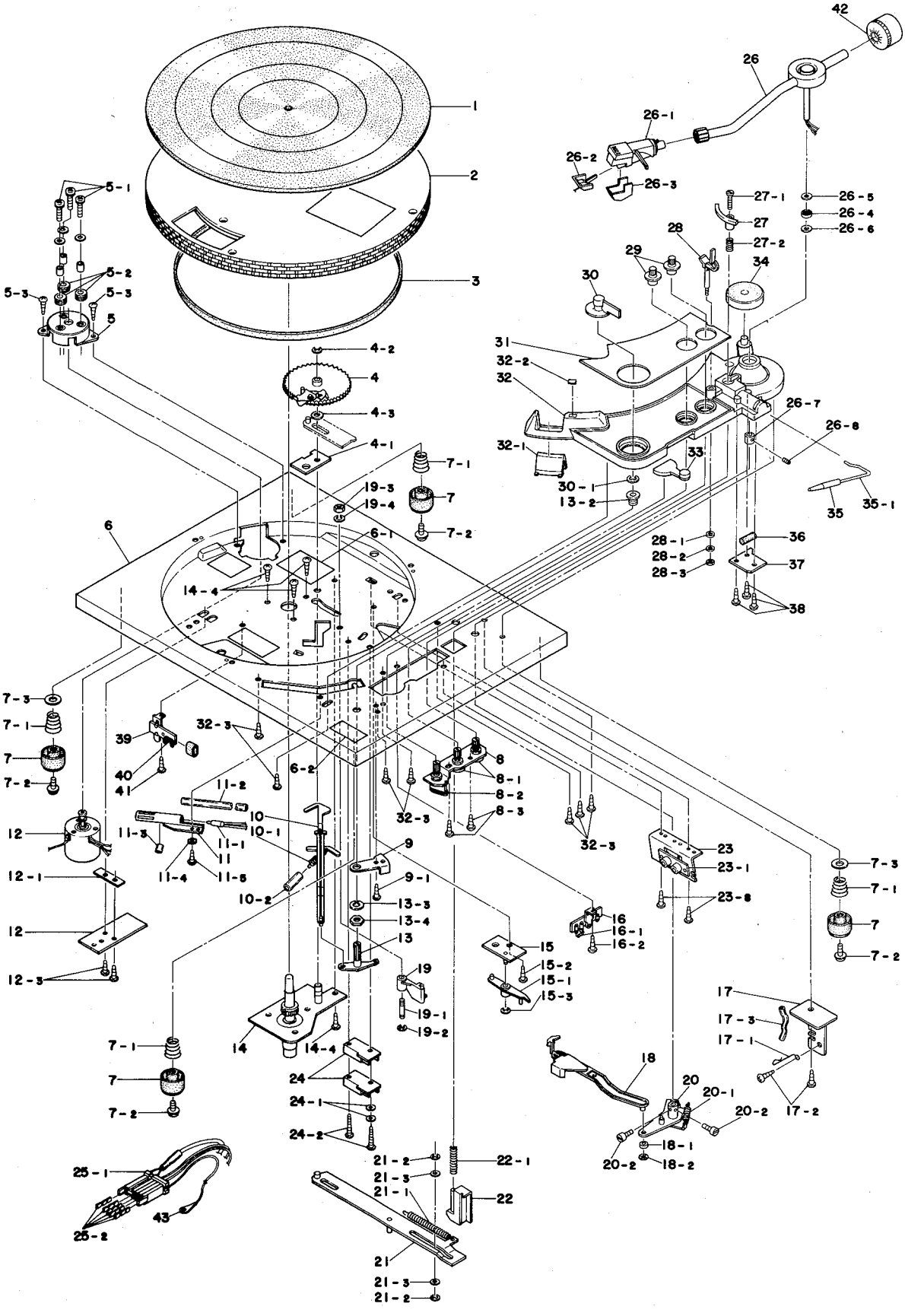


FIG. 27

SERVICING THE RECORD PLAYER

HEADSHELL/CARTRIDGE REPLACEMENT

1. Remove headshell/cartridge fixing nut by turning it clockwise and pull out headshell/cartridge from pickup arm, as shown in Fig. 28.
2. Install a new headshell/cartridge to pickup arm.

NOTE:
Correct stylus position can be obtained by relocating the cartridge, as shown in Fig. 29.

STYLUS REPLACEMENT

1. Lift pickup arm to a position that will make the stylus accessible.
2. Gently remove worn stylus and replace it with a new one, as shown in Fig. 30.

LUBRICATION

The record player has been thoroughly lubricated at the factory and under normal use should not require additional lubrication. When replacing some parts, however, it may be necessary to lubricate the parts as specified.
(Apply grease to Ⓖ as shown in Figs. 32 and 33.)

NOTE:
Do not allow grease to touch motor pulley, belt and turntable.

STYLUS PRESSURE ADJUSTMENT

1. Release pickup arm from its seated position. Place a record on the turntable. Then, balance the pickup arm by turning in or out the balance weight until the stylus is leveled to the surface of the record (as viewed from the turntable unit side).
2. Set the stylus pressure dial to "0", and since the specified stylus pressure of the cartridge is 2.0 grams, set the balance weight dial to "2" by turning the weight counterclockwise, as shown in Fig. 31.

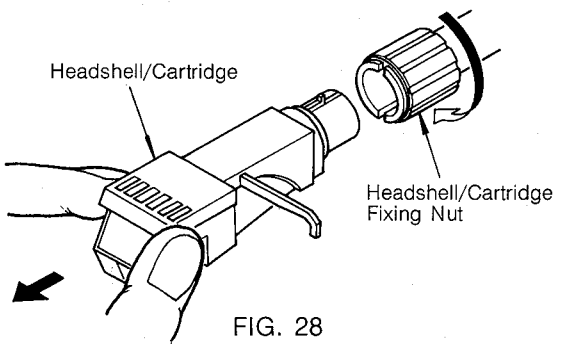


FIG. 28

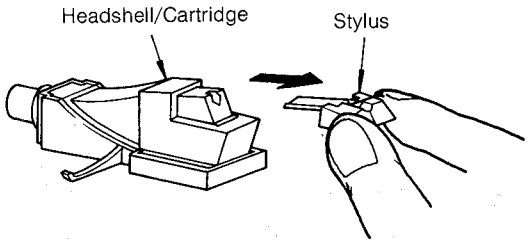


FIG. 30

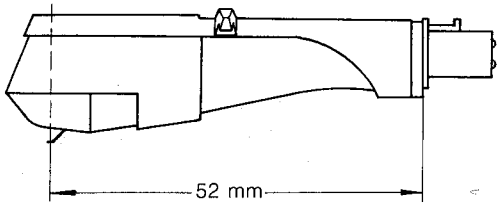


FIG. 29

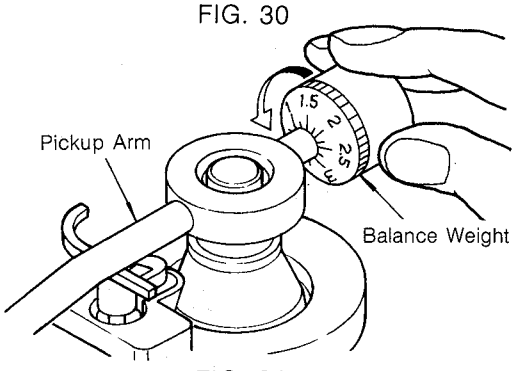


FIG. 31

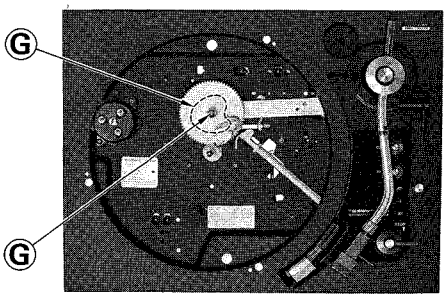


FIG. 32

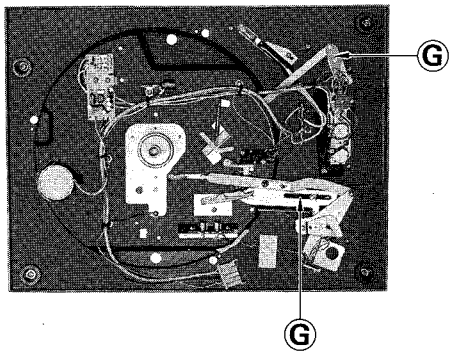


FIG. 33

FM "SENSOR" TOUCH PRESET TUNING SYSTEM

GENERAL DESCRIPTION

The FM "Sensor Touch" Preset Tuning System of the equipment is designed for an easy soft touch selection of six stations.
This system is composed of an electronic tuning circuit equipped with varactor diodes and sensing driver circuit using two integrated circuits, IC101 NS94041 and IC102 NS94042.

CIRCUIT OPERATION

The operation of FM "Sensor Touch" Preset Tuning System is shown in Fig. 34.
IC101 NS94041 operates to select the station for MANUAL, P1, P2 and P3, and IC102 NS94042 is for P4, P5 and P6.

When the sensor button of P1 is touched with a finger, the detecting circuit of P1 operates to energize LED driver and channel out circuit and then a LED lights. While applying voltage that is adjusted by VR101 to the varactor diode of the electronic tuning circuit, the station is selected.
Muting circuit enables to decrease selection noise when tuning, by flowing the signal from No. 6 pin of IC101 to TR205.
Hold circuit and reset circuit are provided to lock the selected station when releasing the finger.
Initial Set circuit of IC101 operates to tune the station of P1 preferentially when the equipment power switch is turned ON again after turning OFF.

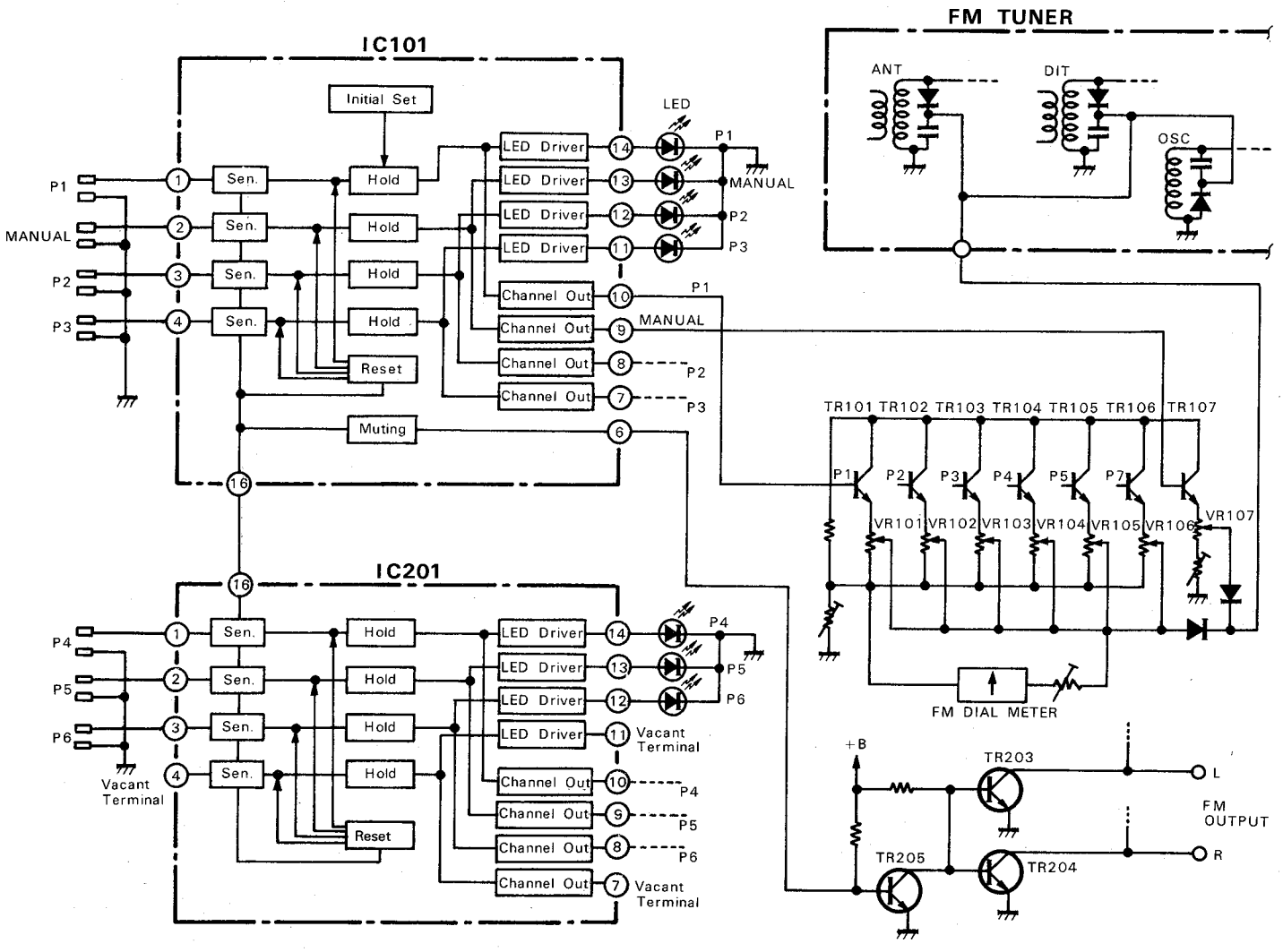


FIG. 34

BLOCK DIAGRAM OF MODEL SG-3090L

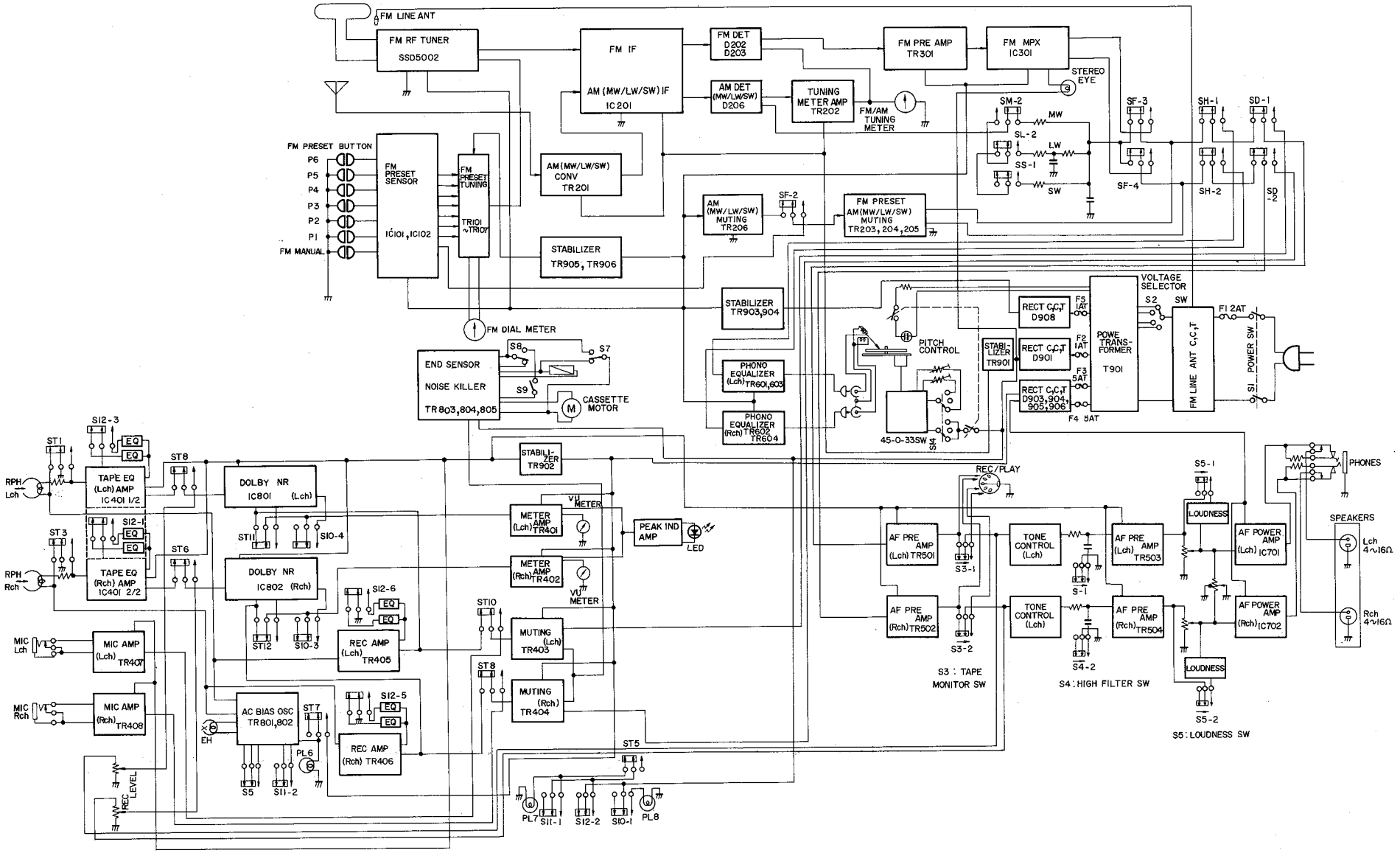


FIG. 35

REPLACEMENT PARTS LIST

NOTES:
1. Part numbers are indicated on most mechanical parts.
2. Please use this part number for parts orders.
3. Part numbers composed by bold face are service standard parts and may differ from production parts.
4. Components identified by shaded area have special characteristics important for safety. When replacing any of these components used only manufacturer's specified parts.
5. A ~ C rank.
   A rank parts will cover 80% of repair needs.
   A + B rank parts will cover 95% of repair needs.
   C rank parts are less necessary.
6. The term "M. Film" is the abbreviation of Metal Film.
7. The term "W. Wnd." is the abbreviation of Wire Wound.

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
		TRANSISTORS		
TR101~107	**2SC828**	Transistor, FM Tuning	7	A
TR201	**2SC1359**	Transistor, AM Conv.	1	A
TR202	**2SC828**	Transistor, Tuning Meter	1	A
TR203~206	**2SC828**	Transistor, Muting	4	A
TR301	**2SC1327**	Transistor, FM AF Amplifier	1	A
TR401,402	**2SC828**	Transistor, Meter Drive	2	A
TR403,404	**2SC828**	Transistor, Muting	2	A
TR405,406	**2SC828**	Transistor, Rec Amplifier	2	A
TR407,408	**2SC1327**	Transistor, Mic Amplifier	2	A
TR410	**2SC828**	Transistor, Lamp Drive	1	A
TR501~504	**2SC1327**	Transistor, AF Amplifier	4	A
TR601~604	**2SC1327**	Transistor, AF Amplifier	4	A
TR801	**2SB175**	Transistor, Bias OSC	1	A
TR802	**2SB324**	Transistor, Bias Amplifier	1	A
TR803,804	**2SC828**	Transistor, Meter Control	2	A
TR805	**2SC1568**	Transistor, Meter Control	1	A
TR901	**2SC1383**	Transistor, Voltage Stabilizer	1	A
TR902	**2SC1398**	Transistor, Voltage Stabilizer	1	A
TR903	**2SC1398**	Transistor, A.V.R.	1	A
TR904	**2SC828**	Transistor, A.V.R.	1	A
TR905	**2SC1383**	Transistor, A.V.R.	1	A
TR906	**2SC828**	Transistor, A.V.R.	1	A
		DISCRETE CIRCUIT		
TR411~414	**2SC1327**	Transistor, Equalizer Amplifier	4	A

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
		INTEGRATER CIRCUITS		
IC101	SN94041	IC, Manual/Preset	1	○A
IC102	SN94042	IC, Manual/Preset	1	○A
IC201	**AN217**	IC, FM AM IF	1	A
IC301	LA3350A	IC, FM MPX	1	A
IC401	LA3122	IC, Cassette EQ/REC Amplifier	1	A
IC701,702	STK025G	IC, Power Amplifier	2	A
IC801,802	NE545B	IC, Meter and ALC	2	A
		DIODES		
D101~108	MA161	Diode, FM Tuning	8	A
D201	**2OA90**	Diode, AM AGC	1	A
D202,203	2OA90	Diode, FM DET	2	A
D204	**2OA90**	Diode, Tuning Meter	1	A
D205	VD1123	Diode, Tuning Meter	1	A
D206	**2OA90**	Diode, AM DET	1	A
D207,208	**2OA90**	Diode, FM AGC	2	A
D209	**2OA90**	Diode, Tuning Meter	1	A
D301,302	MA161	Diode, Switching	2	A
D401	2OA90	Diode, Rect	1	A
D402	2OA90	Diode, Rect	1	A
D405	2OA90	Diode, Rect	1	A
D406	2OA90	Diode, Rect	1	A
D407	2OA90	Diode, Rect	1	A
D408	2OA90	Diode, Rect	1	A
D409	SR103D	Diode, Peak Indicator (PL12)	1	A
D801	OA91	Diode, Meter and ALC	1	A
D802	OA91	Diode, Meter and ALC	1	A
D803	VD1121	Diode, AOC	1	A
D804	**2OA90**	Diode, Damper	1	A
D805	**2OA90**	Diode, Damper	1	A
D806	MA1075	Diode, Zener	1	A
D807	10D1	Diode, Damper	1	A
D901	S1RB10	Diode, Rect	1	A
D902	**MA1091**	Diode, Zener	1	A
D903~906	S3V20	Diode, Rect	4	○A
D907	10DC1	Diode, Rect	1	A
D909,910	**MA1130**	Diode, Zener	2	A
D911	**MA1130**	Diode, Zener	1	A
D912,D913	MA1075	Diode, Zener	2	A

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
THERMISTER				
TH801	RRT103	Thermister	1	A
LAMPS AND FUSES				
PL1	XAMR53X300	Dial Lamp	1	A
PL4,5	XAMR53X300	Meter Lamp	1	A
PL6	**XAMR53X300**	Rec Lamp	1	A
PL7	**XAMR53X300**	CrO2 Lamp	1	A
PL8	**XAMR53X300**	Dolby Lamp	1	A
PL9	XAMR53X300	Stereo Eye	1	A
F1	XBAS2A2001	Fuse	1	A
F2	XBAS2A1004	Fuse	1	A
F3	XBA2C50TR0	Fuse	1	○ A
F4	XBA2C50TR0	Fuse	1	○ A
F5	XBAS2A1004	Fuse	1	A
METER				
M1	SSM86	VU Meter	1	B
M2	SSM68	Tuning Meter (PL2)	1	○ B
M3	SSM70	FM Dial Meter (PL3)	1	○ B
COILS AND TRANSFORMER				
L201,202	SLF6G28-O	Coil, MW and LW Ferrite Antenna	1	○ A
L203	SLA3M6-M	Coil, SW Antenna	1	○ A
L204	SLO2M6-M	Coil, MW Oscillator	1	○ A
L205	SLO1M4-M	Coil, LW	1	○ A
L206	SLO3M2-M	Coil, SW	1	○ A
L401,402	SLQU222-2Y	Coil, Rec EQ	2	A
L403,404	SLQV393-4Y	Trap Coil	2	A
L801,802	SLQC363-2K	Coil, 19 kHz (36 mH) Trap	2	A
L803,804	SLQC233-2K	Coil, 38 kHz (23 mH) Trap	2	A
L805	SLO9Z10-K	Coil, Bias Oscillator	1	A
L806,807	ELQ250A999	Coil, Choke	2	A
L901,902	SLQY35S-2S	Coil, RFC	2	A
T201	SLI2M102	AM 1st IFT	1	A
T202	RLI7W105R-T	AM Ceramic Filter	1	A
T203	RLI2M402	AM IFT	1	A
T204	RLI4M501-M	FM Disc	1	A
T205	RLI4M502-M	FM Disc	1	A

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
T801	SLT6E2-D	Output Transformer (Bias OSC)	1	A
T1	SLT5Z6-W	Power Transformer	1	○ A
CF201,202	RVFCF10M12CR	FM Ceramic Filter	2	A
VARIABLE CAPACITORS				
CT201～206 CV201,202	SCV3T12S	Trimmer Capacitor	2	A
VR107	SCVC637W112K	Tuning Capacitor, w/Volume	1	○ A
VARIABLE RESISTORS				
VR101～106	**SVV2**	Pre-set Adjust	6	A
VR108	EVLS3AA00B24	20kB FM Dial Meter Adjust	1	A
VR109	EVLS3AA00B14	10kB FM Dial Meter Adjust	1	A
VR110	EVLS3AA00B32	300ohmB Pre-set Adjust	1	A
VR301	**EVLT0AA00B13**	1kB FM Stereo Separation	1	A
VR302	**EVLT0AA00B53**	5kB 19kHz Adjust	1	A
VR401,402	EVLS3AA00B24	20kB Dolby Level Adjust	2	A
VR403,404	EVLS3AA00B14	10kB Bias Meter	2	A
VR405	EVLS3AA00B24	20kB Dolby Level Adjust	1	A
VR451,452	EVH6UA363A24	20kA Rec Level Adjust	2	A
VR461,462	**EVLT0AA00B53**	5kB Rec Current Adjust	2	A
VR501～504	EWK8EA331A54	50kA Bass, Treble Control	2	A
VR505,506	EWFN3AK30A54	50kA Volume Control	1	A
VR507	EVH0UA363G54	50kG Balance Control	1	A
VR801	EVLS3AA00B13	1kB OSC Out Adjust	1	A
VR802,803	EVLS3AA00B14	10kB Bias Meter	2	A
VR901	EVLS3AA00B13	1kB Voltage Adjust	1	A
SWITCHES				
S1	ESB7067	Switch, Power	1	A
S2	ESE3742	Switch, Line Selector	1	A
S3～5	SSH304	Switch, Tape Monitor, Loudness, High Filter Switch	1	○ A
S6	SSS28	Switch, WDS	1	A
S10	SSS82	Switch, Dolby	1	A
S11	SSS80	Switch, Bias Nor-CrO_2	1	A
S12	SSS84	Switch, EQ Nor-CrO_2	1	A
S13	SSP20	Switch, Lead	1	○ A
ST1～12	ESD8621	Switch, Rec/Play	12	A

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
S14	SSH606	Switch, Function	1	○ A
SX1	ESA2055	Remote Wire Assembly	1	A
		TUNER		
	SSD5002	FM RF Tuner	1	○ C
		COMPONENT COMBINATIONS		
Z201	**EXA5DL04C**	Component Combination, FM Det	1	B
Z202	**EXAF203Z471**	Component Combination, AM Det	1	B
Z901～905	RXAF103Z22EY	Component Combination, Rectifier	5	B
		RESISTORS		
R101～107	**ERD25TJ105**	Carbon 1M ohm 1/4W ±5%	7	C
R108	**ERD25TJ471**	Carbon 470 ohm 1/4W ±5%	1	C
R109	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	1	C
R110～115	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	6	C
R116	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	1	C
R117	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	1	C
R118	**ERD25TJ470**	Carbon 47 ohm 1/4W ±5%	1	C
R119	**ERD25TJ220**	Carbon 22 ohm 1/4W ±5%	1	C
R120	**ERD25TJ105**	Carbon 1M ohm 1/4W ±5%	1	C
R121	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	1	C
R122	**ERD25TJ561**	Carbon 560 ohm 1/4W ±5%	1	C
R124	**ERD25TJ474**	Carbon 470k ohm 1/4W ±5%	1	C
R201	**ERD25TJ331**	Carbon 330 ohm 1/4W ±5%	1	C
R202	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	1	C
R204	**ERD25TJ101**	Carbon 100 ohm 1/4W ±5%	1	C
R205	**ERD25TJ221**	Carbon 220 ohm 1/4W ±5%	1	C
R206	**ERD25TJ152**	Carbon 1.5k ohm 1/4W ±5%	1	C
R207	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	1	C
R208	**ERD25TJ153**	Carbon 15k ohm 1/4W ±5%	1	C
R209	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C
R210	**ERD25TJ681**	Carbon 680 ohm 1/4W ±5%	1	C
R211,212	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R213,214	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	2	C
R215	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	1	C
R216	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	1	C
R217	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	1	C
R218	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	1	C
R219	**ERD25TJ471**	Carbon 470 ohm 1/4W ±5%	1	C
R220	**ERD25TJ333**	Carbon 33k ohm 1/4W ±5%	1	C

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks	
R221	**ERD25TJ224**	Carbon 220k ohm 1/4W ±5%	1	C	
R222	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	1	C	
R223	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	1	C	
R224	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	1	C	
R225	**ERD25TJ474**	Carbon 470k ohm 1/4W ±5%	1	C	
R226,227	**ERD25TJ224**	Carbon 220k ohm 1/4W ±5%	2	C	
R228	**ERD25TJ220**	Carbon 22 ohm 1/4W ±5%	1	C	
R229	**ERG1ANJ220**	M. Film 22 ohm 1W ±5%	1	C	
R230	**ERD25TJ223**	Carbon 22k ohm 1/4W ±5%	1	C	
R231	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	1	C	
R232	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	1	C	
R233	**ERD25TJ100**	Carbon 10 ohm 1/4W ±5%	1	C	
R234	**ERD25TJ221**	Carbon 220 ohm 1/4W ±5%	1	C	
R235	**ERD25TJ101**	Carbon 100 ohm 1/4W ±5%	1	C	
R235	**ERD25TJ470**	Carbon 47 ohm 1/4W ±5%	1	C	SEV only
R236	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	1	C	
R237	**ERD25TJ223**	Carbon 22k ohm 1/4W ±5%	1	C	
R238	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C	
R239,240	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	2	C	
R244	**ERD25TJ681**	Carbon 680 ohm 1/4W ±5%	1	C	
R245,246	**ERD25TJ153**	Carbon 15k ohm 1/4W ±5%	2	C	
R247	**ERD25TJ101**	Carbon 100 ohm 1/4W ±5%	1	C	
R248	**ERD25TJ152**	Carbon 1.5k ohm 1/4W ±5%	1	C	
R249	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	1	C	
R250	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C	SEV only
R301	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	1	C	
R302	**ERD25TJ101**	Carbon 100 ohm 1/4W ±5%	1	C	
R303	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	1	C	
R304	**ERD25TJ333**	Carbon 33k ohm 1/4W ±5%	1	C	
R305	**ERD25TJ681**	Carbon 680 ohm 1/4W ±5%	1	C	
R306	**ERG1ANJ330**	M. Film 33 ohm 1W ±5%	1	C	
R307,308	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	2	C	
R309,310	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C	
R311	**ERD25TJ220**	Carbon 22 ohm 1/4W ±5%	1	C	
R312	**ERD25TJ224**	Carbon 220k ohm 1/4W ±5%	1	C	
R313	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	1	C	
R314	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	1	C	
R315	**ERD25TJ563**	Carbon 56k ohm 1/4W ±5%	1	C	
R316	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	1	C	
R317	**ERD25TJ473**	Carbon 47k ohm 1/4W ±5%	1	C	
R401,402	**ERD25T100**	Carbon 10 ohm 1/4W ±5%	2	C	
R403,404	**ERD25TJ224**	Carbon 220k ohm 1/4W ±5%	2	C	
R405,406	**ERD25TJ824**	Carbon 820k ohm 1/4W ±5%	2	C	
R407,408	**ERD25TJ273**	Carbon 27k ohm 1/4W ±5%	2	C	
R411,412	**ERD25TJ153**	Carbon 15k ohm 1/4W ±5%	2	C	
R413,414	**ERD25TJ224**	Carbon 220k ohm 1/4W ±5%	2	C	
R415,416	**ERD25TJ152**	Carbon 1.5k ohm 1/4W ±5%	2	C	
R417,418	**ERD25TJ331**	Carbon 330 ohm 1/4W ±5%	2	C	

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R419,420	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	2	C
R421,422	**ERD25TJ473**	Carbon 47k ohm 1/4W ±5%	2	C
R423,424	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	2	C
R427,428	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	2	C
R429,430	**ERD25TJ334**	Carbon 330k ohm 1/4W ±5%	2	C
R431,432	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R433,434	**ERD25TJ471**	Carbon 470 ohm 1/4W ±5%	2	C
R435,436	**ERD25TJ470**	Carbon 47 ohm 1/4W ±5%	2	C
R437,438	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	2	C
R440	**ERG1ANJ151**	M. Film 150 ohm 1W ±5%	1	C
R441	**ERD25TJ151**	Carbon 150 ohm 1/4W ±5%	1	C
R442	**ERQ12HJ151**	M. Film 150 ohm 1/2W ±5%	1	○C
R444	**ERG1ANJ680**	M. Film 68 ohm 1W ±5%	1	C
R445	**ERG1ANJ470**	M. Film 47 ohm 1W ±5%	1	C
R446	**ERQ12HG220**	M. Film 22 ohm 1/2W ±5%	1	○C
R447,448	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	2	C
R449	**ERD25TJ471**	Carbon 470 ohm 1/4W ±5%	1	C
R450	**ERD25TJ333**	Carbon 33k ohm 1/4W ±5%	1	C
R451,452	**ERD25TJ105**	Carbon 1M ohm 1/4W ±5%	2	C
R453,454	**ERD25TJ682**	Carbon 6.8 ohm 1/4W ±5%	2	C
R455,456	**ERD25TJ331**	Carbon 330 ohm 1/4W ±5%	2	C
R457,458	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	2	C
R461,462	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R463,464	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C
R465	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C
R467,468	**ERD25TJ563**	Carbon 56k ohm 1/4W ±5%	2	C
R469,470	**ERD25TJ823**	Carbon 82k ohm 1/8W ±5%	2	C
R471,472	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R501,502	**ERD25TJ155**	Carbon 1.5M ohm 1/8W ±5%	2	C
R503,504	**ERD25TJ331**	Carbon 330 ohm 1/4W ±5%	2	C
R505,506	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C
R507,508	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	2	C
R509,510	**ERD25TJ333**	Carbon 33k ohm 1/4W ±5%	2	C
R511,512	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	2	C
R515,516	**ERD25TJ153**	Carbon 15k ohm 1/4W ±5%	2	C
R517,518	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	2	C
R519,520	**ERD25TJ223**	Carbon 22k ohm 1/4W ±5%	2	C
R521,522	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	2	C
R523,524	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	2	C
R525,526	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C
R527,528	**ERD25TJ105**	Carbon 1M ohm 1/4W ±5%	2	C
R529,530	**ERD25TJ155**	Carbon 1.5M ohm 1/4W ±5%	2	C
R531,532	**ERD25TJ221**	Carbon 220 ohm 1/4W ±5%	2	C
R533,534	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	2	C
R535,538	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	2	C
R539,540	**ERD25TJ154**	Carbon 150k ohm 1/4W ±5%	2	C
R541	**ERG1ANJ470**	M. Film 47 ohm 1W ±5%	1	C
R601,602	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R603,604	**ERD25TJ471**	Carbon 470 ohm 1/4W ±5%	2	C
R605～608	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	4	C
R609,610	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	2	C
R611,612	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C
R613,614	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	2	C
R615,616	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C
R617,618	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C
R619,620	**ERD25TJ222**	Carbon 2.2k ohm 1/4W ±5%	2	C
R622,623	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R701,702	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R703,704	**ERD25TJ331**	Carbon 330 ohm 1/4W ±5%	2	C
R705,706	**ERD50TJ4R7**	Carbon 4.7 ohm 1/2W ±5%	2	C
R707,708	**ERD50TJ331**	Carbon 330 ohm 1/2W ±5%	2	C
R801,802	ERD18TF3301	Carbon 3.3k ohm 1/8W ±1%	2	C
R803,804	**ERD25TJ181**	Carbon 180 ohm 1/4W ±5%	2	C
R805,806	**ERD25TJ473**	Carbon 47k ohm 1/4W ±5%	2	C
R807,808	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	2	C
R809,810	**ERD25TJ121**	Carbon 120 ohm 1/4W ±5%	2	C
R811,812	**ERD25TJ154**	Carbon 150k ohm 1/4W ±5%	2	C
R813,814	**ERD25TJ684**	Carbon 680k ohm 1/4W ±5%	2	C
R815,816	**ERD25TJ274**	Carbon 270k ohm 1/4W ±5%	2	C
R817,818	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R819	**ERD25TJ683**	Carbon 68k ohm 1/4W ±5%	1	C
R820	**ERD25TJ221**	Carbon 220 ohm 1/4W ±5%	1	C
R821	**ERD25TJ151**	Carbon 150 ohm 1/4W ±5%	1	C
R822	**ERD25TJ221**	Carbon 220 ohm 1/4W ±5%	1	C
R823,824	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R825	**ERD25TJ220**	Carbon 22 ohm 1/4W ±5%	1	C
R826	**ERG1ANJ101**	M. Film 100 ohm 1W ±5%	1	C
R827	**ERG1ANJ151**	M. Film 150 ohm 1W ±5%	1	C
R828	**ERD25TJ154**	Carbon 150k ohm 1/4W ±5%	1	C
R829	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	1	C
R830	**ERD25TJ223**	Carbon 22k ohm 1/4W ±5%	1	C
R831	**ERD25TJ152**	Carbon 1.5k ohm 1/4W ±5%	1	C
R832	**ERD25TJ331**	Carbon 330 ohm 1/4W ±5%	1	C
R833	**ERD25TJ332**	Carbon 3.3k ohm 1/4W ±5%	1	C
R834	**ERD25TJ821**	Carbon 820 ohm 1/4W ±5%	1	C
R835	**ERD25TJ473**	Carbon 47k ohm 1/4W ±5%	1	C
R836	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C
R837	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	1	C
R838	**ERD25TJ223**	Carbon 22k ohm 1/4W ±5%	1	C
R839	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	1	C
R841,842	**ERD25TJ105**	Carbon 1M ohm 1/4W ±5%	2	C
R901	**ERD25TJ472**	Carbon 4.7k ohm 1/4W ±5%	1	C
R902	**ERG1ANJ470**	M. Film 47 ohm 1W ±5%	1	C
R903	**ERX1ANJ010**	M. Film 1 ohm 1/2W ±5%	1	○C
R904	**ERQ12HJ220**	M. Film 22 ohm 1/2W ±5%	1	○C
R905	**ERD25TJ152**	Carbon 1.5k ohm 1/4W ±5%	1	C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
R906	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C
R908	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C
R909	**ERD25TJ680**	Carbon 68 ohm 1/4W ±5%	1	C
R910	**ERD25TJ152**	Carbon 1.5k ohm 1/4W ±5%	1	C
R911	**ERD25TJ221**	Carbon 220 ohm 1/4W ±5%	1	C
R912	**ERD25TJ331**	Carbon 330 ohm 1/4W ±5%	1	C
R913	**ERD25TJ681**	Carbon 680 ohm 1/4W ±5%	1	C
R914	**ERD25TJ220**	Carbon 22 ohm 1/4W ±5%	1	C
R915	**ERD25TJ152**	Carbon 1.5k ohm 1/4W ±5%	1	C
R917	**ERG2ANJ680**	M Film 68 ohm 2W ±5%	1	C
R918	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	1	C
		DISCRETE CIRCUIT		
R405,406	**ERD25TJ224**	Carbon 220k ohm 1/4W ±5%	2	C
R407,408	**ERD25TJ682**	Carbon 6.8k ohm 1/4W ±5%	2	C
R411,412	**ERD25TJ392**	Carbon 3.9k ohm 1/4W ±5%	2	C
R463,464	**ERD25TJ103**	Carbon 10k ohm 1/4W ±5%	2	C
R481,482	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	2	C
R483,484	**ERD25TJ101**	Carbon 100 ohm 1/4W ±5%	2	C
R485,486	**ERD25TJ102**	Carbon 1k ohm 1/4W ±5%	2	C
R487	**ERD25TJ104**	Carbon 100k ohm 1/4W ±5%	1	C
		CAPACITORS		
C101～107	**ECKD1H223MD**	Ceramic 0.022mfd 50WV ±10%	7	C
C108,109	**ECEA16V220**	Electrolytic 220mfd 16WV	2	C
C110	**ECEA50V1**	Electrolytic 1mfd 50WV	1	C
C111	**ECEA50V1**	Electrolytic 1mfd 50WV	1	C
C112,113	**ECEA16V220**	Electrolytic 220mfd 16WV	2	C
C114	**ECEA50V1**	Electrolytic 1mfd 50WV	1	C
C115	**ECEA25V2R2**	Electrolytic 2.2mfd 25WV	1	C
C116	**ECCD1H100FC**	Ceramic 10pF 50WV ±1pF	1	C
C201～203	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100,−0%	3	C
C204	**ECCD1H270JC**	Ceramic 27pF 50WV ±5%	1	C
C205	ECQS1152JZ	Styrol 1500pF 100WV ±5%	1	C
C206	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100,−0%	1	C
C207,208	**ECKD1H223MD**	Ceramic 0.022mfd 50WV ±20%	2	C
C209	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100,−0%	1	C
C210	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks	
C211	**ECKD1H223MD**	Ceramic 0.022mfd 50WV ±20%	1	C	
C212	**ECEA35V4R7**	Electrolytic 4.7mfd 35WV	1	C	
C213	**ECKD1H472KB**	Ceramic 0.0047mfd 50WV ±20%	1	C	
C214,215	**ECCD1H101JC**	Ceramic 100pF 50WV ±5%	2	C	
C216	**ECEA25V2R2**	Electrolytic 2.2mfd 25WV	1	C	
C217	**ECKD1H103MD**	Ceramic 0.01mfd 50WV ±20%	1	C	
C218	**ECEA16V10**	Electrolytic 10mfd 16WV	1	C	
C219,220	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	1	C	
C220	**ECKD1H223MD**	Ceramic 0.022mfd 50WV ±20%	1	C	SEV only
C221	**ECCD1H101JC**	Ceramic 100pF 50WV ±5%	1	C	
C221	**ECCD1H471JC**	Ceramic 470pF 50WV ±5%	1	C	SEV only)
C222	**ECCD1H680JC**	Ceramic 68pF 50WV ±5%	1	C	
C223	**ECKD1H223MD**	Ceramic 0.022mfd 50WV ±20%	1	C	
C224,225	**ECKD1H103MD**	Ceramic 0.01mfd 50WV ±20%	2	C	
C226	**ECKD1H223MD**	Ceramic 0.022mfd 50WV ±20%	1	C	
C227	**ECKD1H222KB**	Ceramic 0.0022mfd 50WV ±10%	1	C	
C228	ECQS1471JZ	Styrol 470pF 100WV ±5%	1	C	
C229	**ECCD1H120JC**	Ceramic 12pF 50WV ±5%	1	C	
C230	ECQS1161JZ	Styrol 160pF 100WV ±5%	1	C	
C231	ECQS1301JZ	Styrol 300pF 100WV ±5%	1	C	
C232	**ECCD1H270JC**	Ceramic 27pF 50WV ±5%	1	C	
C233	ECQS1472JZ	Styrol 4700pF 100WV ±5%	1	C	
C234	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	1	C	
C235	**ECKD1H472KB**	Ceramic 0.0047mfd 50WV ±10%	1	C	
C236	**ECKD1H223PF**	Ceramic 0.022mfd 50WV ±10%	1	C	
C239	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C	
C240	**ECEA25N10**	Electrolytic 10mfd 25WV	1	C	
C241	**ECCD1H270JC**	Ceramic 27pF 50WV ±5%	1	C	
C242	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100,−0%	1	C	
C243	**ECEA16V10**	Electrolytic 10mfd 16WV	1	C	
C244～246	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100,−0%	3	C	
C301	**ECEA50V1**	Electrolytic 1mfd 50WV	1	C	
C302	ECQM05473MZ	Polyester 0.047mfd 50WV ±20%	1	C	
C303	ECQS1152JZ	Styrol 1500pF 100WV ±5%	1	C	
C304	ECAG16ER22	Electrolytic 0.22mfd 16WV	1	C	
C305	ECAG16ER47	Electrolytic 0.47mfd 16WV	1	C	
C306	**ECEA16V47**	Electrolytic 47mfd 16WV	1	C	
C307	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C	
C308	ECEA50MR33E	Electrolytic 0.33mfd 50WV	1	C	
C309,310	**ECKD1H103MD**	Ceramic 0.01mfd 50WV ±20%	2	C	
C311,312	**ECKD1H333MD**	Ceramic 0.033mfd 50WV ±20%	2	C	
C313,314	**ECKD1H472KB**	Ceramic 0.0047mfd 50WV ±10%	2	C	
C315	**ECEA50V3R3**	Electrolytic 3.3mfd 50WV	1	C	
C401,402	ECAG16E4R7	Electrolytic 4.7mfd 16WV	2		
C403,404	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	2	C	
C405,406	**ECCD1H560JC**	Ceramic 56pF 50WV ±5%	2	C	
C407,408	**ECEA16V33**	Electrolytic 33mfd 16WV	2	C	
C409,410	**ECEA16V10**	Electrolytic 10mfd 16WV	2	C	

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
PACKING				
PA1	SPN2636	Carton, Inner	1	C
PA2	SPN2576	Pad, Front	1	C
PA3	SPN2578	Pad, Rear	1	C
PA4	SPN2580	Pad, Upper	1	C
PA5	SPN2646	Pad, Knob	1	C
PA6	SPH6050	Sheet, TT Protection	1	C
PA7	SPN2362	Accessory Case A	1	C
PA8	SPN2364	Accessory Case Cover	1	C
PA9	SNE208	Screw, Player Fixing	3	C
PA10	SNW601	Washer	3	C
CASSETTE TAPE PLAYER/RECORDER (SJD80)				
2	SBC234	Push Button	7	○ B
3	SMQ1232	REC Safety Lever	1	C
4	SMQ662	Spring, REC Safety Lever	1	B
5	SNE432	Push Nut, REC Safety Lever	1	B
6	SJH34	R/P Head	1	A
7	SJH14	Erase Head	1	A
8	SMQ678	Spring, R/P Head and Flywheel Bracket	2	B
9	SMQ1360	Spring A, Head Panel	2	B
10	SMQ1362-1	Head Base	1	C
11	SMQ1388	Eject Stop Lever w/Spring	1	C
12	SMQ1690	Guide Pin (R)	1	C
13	SMQ462	Spring, Supply Reel	1	C
14	SMQ1658	Pressure Roller Assembly	1	A
15	SMQ1660	Spring, Pressure Roller	1	B
16	SMQ1626	Reel Table	2	B
17	SMQ1624	Tape Counter	1	○ B
18	SMQ1588	Belt, Tape Counter	1	A
19	SMQ1354	Brake Arm	1	C
20	SMQ1358	Spring, Brake Arm	1	B
21	SMQ1394	Spring, Tape Holder	1	B
22	MHX5A2RSL	Motor	1	○ A
23	SMQ1662	Motor Pulley	1	B
24	SMQ716	Rubber Cushion, Motor	3	C
25	SMQ718	Spacer, Motor	3	C
26	SMQ1664	Switch	2	A
27	SMQ1396	Eject Slide Lever w/Spring	1	C
28	SMQ1374	Spacer A, Eject Slide Lever	1	C
29	SMQ1398	Spacer B	3	C

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
30	SMQ1672	Clutch Assembly w/Spring	1	C
31	SMQ1674	Flywheel Bearing	1	C
32	SMQ1676	Hold Plate, Flywheel Bearing	1	C
33	SMQ148	Washer, Oil Thrower	2	C
34	SMQ1682	Nylon Washer	1	C
35	SMQ1686	Flywheel	1	C
36	SMQ1688	Belt, Main	1	A
37	SMQ1678	Retainer, Flywheel	1	C
38	SMQ1382-2	FF. Rew Arm Assembly w/Spring	1	C
39	SMQ1432	FF. Lever	1	C
40	SMQ1406	Operation Plate, Brake	1	C
41	SMQ1408	Rewind Arm w/Spring	1	C
42	SMQ1386	Rewind Idler	1	C
43	SMQ1410	Pause Lever	1	C
44	SMQ1412	Spacer, Pause Lever	1	C
45	SMQ1414	Pause Slide Lever A w/Spring	1	C
46	SMQ1416	Pause Slide Lever B	1	C
47	SMQ1376	Pause Click Lever	1	C
48	SMQ1418	Spring, Pause Click Lever	1	B
49	SMQ1668	Bracket, Muting Switch	1	A
50	SMQ1666	Bracket, Motor Switch	1	A
51	SMQ1650	REC Slide Lever	1	C
52	SUS208-1	Spring Plate, REC Switch	1	B
53	SMQ1680	Thrust Pad for Flywheel	1	C
54	SMQ1670	Operating Plate, Muting Switch	1	C
55	SMQ1702	Rewind Lever	1	C
56	SMQ1434	Nylon Washer	1	C
57	SMQ1436-1	Auto Stop Lever	1	C
58	SMQ1684	Spacer, Auto Stop Lever	1	C
59	SMQ1530	Play Lever	1	C
60	SMQ1638	REC Slide Lever Spring	1	C
61	SMQ1444	Spring B, Head Panel	1	B
62	SMQ1526	Auto Stop Adjust Arm w/Spring	1	C
63	SMQ1654	Push Button Frame Assembly	1	C
70	SMQ1696	Solenoid Bracket	1	C
71	SMQ1698	Pause Switch	1	A
72	SMQ1692	Solenoid Assembly	1	C
73	SMQ1694	Shaft, Solenoid	1	C
100	XSN2+8	Screw 2 mm × 8	4	C
101	XSN2+10	Screw 2 mm × 10	3	C
102	XYN2+C4	Screw 2 mm × 4	4	C
103	XYN2+C5	Screw 2 mm × 5	3	C
104	XSN2D6	Screw 2 mm × 6	1	C
105	XSN26+6	Screw 2.6 mm × 6	4	C
106	XSN26+7	Screw 2.6 mm × 7	1	C
107	XSN26+10	Screw 2.6 mm × 10	1	C
108	XYN26+C4	Screw 2.6 mm × 4	2	C
109	XYN26+C5	Screw 2.6 mm × 5	1	C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
110	XYN26+C6	Screw 2.6 mm × 6	4	C
111	XYN26+C8	Screw 2.6 mm × 8	2	C
112	XSB26+4	Screw 2.6 mm × 4	1	C
113	XSB26+6	Screw 2.6 mm × 6	3	C
114	XSS3+5S	Screw 3 mm × 5	2	C
120	XWE2A6	Washer 2φ	1	C
121	XWE26D7	Washer 2.6φ	4	C
150	XUC12FT	Circlip 1.2φ	2	C
151	XUC15FT	Circlip 1.5φ	4	C
152	XUC19FT	Circlip 1.9φ	1	C
153	XUC20FT	Circlip 2.0φ	2	C
154	XUC25FT	Circlip 2.5φ	1	C
155	XUC32FT	Circlip 3.2φ	1	C
156	XUC4FT	Circlip 4φ	2	C
		PLAYER (SAP925DP)		
1	SFTG120-01	Rubber, Turntable	1	C
2	SFTE023L01	Turntable	1	C
3	SFGB321-1	Belt	1	C
4	SFUG623-1A	Main Gear Assembly	1	C
4-1	SFUP827-1	Washer	1	C
4-2	XUC5FT	Circlip 5φ	1	C
4-3	XUC5FT	Circlip 5φ	1	C
4-4	XTV3+6B	Screw 3 mm × 6	1	C
5	SFUM023L01	Case, Motor	1	C
5-1	SFXG023L01	Mounting Shaft, Motor	3	C
5-2	SFGC020L01	Rubber, Cushion	3	C
5-3	XTV3+8B	Screw 3 mm × 8	2	C
6	SFBP925D01E	Panel Assembly	1	C
6-1	SFNN825-02	Paper, Name	1	C
6-2	SFNH018X01	Label, Stylus Replacement	1	C
7	SFGC925D01	Rubber, Panel Cushion	4	C
7-1	SFQC925D01	Spring, Panel Cushion	4	C
7-2	XYN4+A6S	Screw 4 mm × 6	4	C
7-3	XWE8F18BW	Washer 8φ	2	C
8	SFUP925D01	Mounting Plate, Switch	1	C
8-1	EVHBTAK15B53	VR, Speed Adjust	2	C
8-2	ESRE123K20D	Switch, Speed Selector	1	C
8-3	XTV3+8B	Screw 3 mm × 8	2	C
9	SFUP925D02	Stop Plate, Cut Lever	1	C
9-1	XTV3+6B	Screw 3 mm × 6	1	C
10	SFUM623-6	Cut Plate	1	C
10-1	SFQH831-1	Return Spring, Cut Plate	1	C
10-2	SFEB5BT25	Vinyl Tube	1	C

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
11	SFUP023L08	Heat Sink	1	C
11-1	SFDNE2HUWMA3	Neon Tube	1	C
11-2	SEEB82UT45	Vinyl Tube	1	C
11-3	SFEB3UT8	Vinyl Tube	1	C
11-4	XWC3BFY	Washer 3φ	1	C
11-5	XTV3+6B	Screw 3 mm × 6	1	C
12	SFMC023L01E	Motor Assembly	1	C
12-1	SFUZ825H01	Insulating Paper, Motor PCW	1	C
12-2	SFUM020L02	Knob, Speed Adjust	2	C
12-3	XTV3+8BFU	Screw 3 mm × 8	2	C
13	SFXL925D01E	Cut Lever Shaft Assembly	1	C
13-1	SFGH825C01	Rubber, Shock Absorption	1	C
13-2	SFXB530-1	Boss, Cut Lever	-	C
13-3	XWA9B	Washer, 9φ	1	C
13-4	SFXN530R1	Nut	1	C
14	SFTU925-01A	Turntable Bearing Assembly	1	C
14-1	SFTJ929-01E	Turntable Shaft Assembly	1	C
14-2	SFYB5-32	Ball	1	C
14-3	SFXG829T01	Screw	1	C
14-4	XTV3+6B	Screw 3 mm × 6	3	C
15	SFUP925D03E	Turntable Shaft Mounting Plate Assembly	1	C
15-1	SFUM023L02	Pressure Plate, Switch	1	C
15-2	XTV3+6B	Screw 3 mm × 6	1	C
15-3	XUC3FT	Circlip 3φ	1	C
16	SFER4B	Lug, 4P	1	C
16-1	ERG1ANJ822	Resistor 8.2k ohm	1	C
16-2	XTV3+6B	Screw 3 mm × 6	1	C
17	SFUP829E01	Bracket, PU Lead Protection	1	C
17-1	SFQS925D01	Spring, Lead Wire	1	C
17-2	XTV3+6B	Screw 3 mm × 6	2	C
17-3	SFEB4BT40	Vinyl Tube	1	C
18	SFUC623-1E	Moving Plate Assembly	1	C
18-1	SFX0925D01	Collar	1	C
18-2	CSTW3	Stop Ring	1	C
19	SFUM925D01	Actuater	1	C
19-1	SFXJ925D01	Shaft, Actuater	1	C
19-2	XUC3FT	Circlip 3φ	1	C
19-3	XNG3BS	Nut 3φ	1	C
19-4	XWA3BFR	Washer 3φ	1	C
20	SFPAB22009K	PU Mounting Plate Assembly	1	C
20-1	SFQH829T05	Return Spring, Mounting Plate	1	C
20-2	XXA3D6FUS	Screw 3 mm × 6	2	C
21	SFUB827-01E	Drive Plate Assembly	1	C
21-1	SFQH623-1	Return Spring, Drive Plate	1	C
21-2	XUC4FT	Circlip 4φ	2	C
21-3	SFXW028-01	Washer	2	C
22	SFPJL22002K	Lift Bar Assembly	1	C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
22-1	SFPSP3400	Spring, Lift Bar	1	C
23	SFUP925P02	Mounting Bracket, PU Socket	1	C
23-1	SJF3201-1	Socket, Pin Jack	1	C
23-8	XTV3+6B	Screw 3 mm×6	2	C
24	SFDSAH75602	Micro Switch	2	C
24-1	SFXW925D01	Washer	2	C
24-2	XTN3+30B	Screw 3 mm×30	2	C
25-1	SJS9502	Housing, Plug	1	C
25-2	SJT726	Pin, Plug	5	C
26	SFP-AM22005K	Pickup Arm Assembly	1	C
26-1	EPC270C-X	Cartridge	1	C
26-2	EPS270SD	Stylus	1	C
26-3	SFCNC8600	Cover, Stylus	1	C
26-4	SFUP890B01E	Bearing, Pickup	1	C
26-5	SFPEW3500	Thrust Washer	1	C
26-6	SFPEW22001	Thrust Washer	1	C
26-7	SFPJD22004	Stop Ring	1	C
26-8	XXE3D3FNS	Screw 3 mm×3	1	C
27	SFKR925S01E	Lift Assembly	1	C
27-1	SFXG829-1	Screw, Lift Height Adjustment	1	C
27-2	SFQA829-03	Spring, Lift Escape	1	C
28	SFPRT22001K	Arm Rest Assembly	1	C
28-1	XWE26E75EW	Washer 2.6ϕ	1	C
28-2	XWA26BFU	Washer 2.6ϕ	1	C
28-3	XNG26HBN	Nut 2.6ϕ	1	C
29	SFKT130-01A	Knob, Speed Adjust	2	C
30	SFKT925-01E	Knob, Cut	1	C
30-1	XUC5FT	Circlip, 5ϕ	1	C
31	SFKK925P01	Ornament, Arm Base	1	C
32	SFPKD22015	Arm Base	1	C
32-1	SFUM023L05	Cover, Neon	1	C
32-2	SFKK023L02	Name Plate, Storoboscope	1	C
32-3	XTV3+8B	Screw 3 mm×8	5	C
33	SFKT925D01E	Knob, Speed Select	1	C
34	SFWE154A1	45 RPM Adaptor	1	C
35	SFP-AB12002	Button, Lift	1	C
35-1	SFP-JL22003	Lever, Lift	1	C
36	SFP-GM22001	Rubber, Cueing	1	C
37	SFP-AB22006	PCB, Lift	1	C
38	XTN3+5B	Screw 3 mm×5	3	C
39	SFER3B	Lug, 3P	1	C
40	ERD25TJ333	Resistor, 33k ohm	1	C
41	XTV3+8B	Screw 3 mm×8	1	C
42	SFP-WG22001K	Balance Weight Assembly	1	C
43	SFEZ16083	Lug, Earth	1	C

Note:

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
C411,412	**ECQM05392MZ**	Polyester 0.0039mfd 50WV ±20%	2	C
C415,416	**ECEA16N4R7**	Electrolytic 4.7mfd 16WV	2	C
C417,418	**ECEA50V3R3**	Electrolytic 3.3mfd 50WV	2	C
C419,420	**ECEA16V10**	Electrolytic 10mfd 16WV	2	C
C423,424	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
C421,422	ECAG16ER68	Electrolytic 0.68mfd 16WV	2	C
C425,526	**ECQM05473MZ**	Polyester 0.047mfd 50WV ±20%	2	C
C427,428	ECQM05103MZ	Polyester 0.01mfd 50WV ±20%	2	C
C429,430	**ECEA16V10**	Electrolytic 10mfd 16WV	2	C
C431,432	**ECQM05472MZ**	Polyester 0.0047mfd 50WV ±20%	2	C
C433,434	ECQS1102JZ	Styrol 1000pF 100WV ±5%	2	C
C436,437	**ECEA25V220**	Electrolytic 220mfd 25WV	2	C
C438	**ECEA16V470**	Electrolytic 470mfd 16WV	1	C
C439	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C
C440	**ECEA16V100**	Electrolytic 100mfd 16WV	1	C
C441	**ECEA16V47**	Electrolytic 47mfd 16WV	1	C
C443,444	**ECQM05183MZ**	Polyester 0.018mfd 50WV ±20%	2	C
C446	**ECEA16V10**	Electrolytic 10mfd 16WV	1	C
C447,448	**ECEA50V3R3**	Electrolytic 3.3mfd 50WV	2	C
C451,452	ECAG16E4R7	Electrolytic 4.7mfd 16WV	2	C
C453,454	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	2	C
C455,456	ECAG16ER22	Electrolytic 0.22mfd 16WV	2	C
C457	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100,−0%	1	C
C458	**ECEA50V3R3**	Electrolytic 3.3mfd 50WV	1	C
C461,462	ECAG16ER1	Electrolytic 0.1mfd 16WV	2	C
C463,464	**ECQM05393MZ**	Polyester 0.039mfd 50WV ±20%	2	C
C501,502	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
C503,504	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	2	C
C505,506	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
C507,508	**ECKD1H222KB**	Ceramic 0.0022mfd 50WV ±10%	2	C
C509,510	**ECKD1H153MD**	Ceramic 0.015mfd 50WV ±20%	2	C
C511,512	**ECKD1H223MD**	Ceramic 0.022mfd 50WV ±20%	2	C
C513,514	**ECQM05683MZ**	Polyester 0.068mfd 50WV ±20%	2	C
C515,516	**ECKD1H332KB**	Ceramic 0.0033mfd 50WV ±10%	2	C
C517,518	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
C519,520	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	2	C
C521,522	**ECEA501**	Electrolytic 1mfd 50WV	2	C
C523,524	ECAG16ER22	Electrolytic 0.22mfd 16WV	2	C
C527	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C
C601,602	**ECEA16V47**	Electrolytic 47mfd 16WV	2	C
C603,604	**ECCD1H560JC**	Ceramic 56pF 50WV ±5%	2	C
C605,606	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	2	C
C607,608	**ECCD1H560JC**	Ceramic 56pF 50WV ±5%	2	C
C609,610	**ECEA16V33**	Electrolytic 33mfd 16WV	2	C
C611,612	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
C613,614	**ECQM05333MZ**	Polyester 0.033mfd 50WV ±20%	2	C
C615,616	**ECQM05103MZ**	Polyester 0.01mfd 50WV ±20%	2	C
C617	**ECEA10V100**	Electrolytic 100mfd 16WV	1	C

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
C618	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C
C701,702	ECAG16E3R3	Electrolytic 3.3mfd 16WV	2	C
C703,704	**ECEA35V47**	Electrolytic 47mfd 35WV	2	C
C705,706	**ECKD1H102KB**	Ceramic 0.001mfd 50WV ±10%	2	C
C707,708	**ECEA16V47**	Electrolytic 47mfd 16WV	2	C
C709,710	ECQM05473MZ	Polyester 0.047mfd 50WV ±20%	2	C
C711,712	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
C801,802	ECAG16ER33	Electrolytic 0.33mfd 16WV	2	C
C803,804	ECQS1392JZ	Styrol 3900pF 100WV ±5%	2	C
C805,806	ECQS1332KZ	Styrol 3300pF 100WV ±5%	2	C
C807,808	ECQS1222JZ	Styrol 2200pF 100WV ±5%	2	C
C809∼812	**ECEA16V10**	Electrolytic 10mfd 16WV	4	C
C813,814	ECQS1472JZ	Styrol 4700pF 100WV ±5%	2	C
C815,816	ECQS1562JZ	Styrol 5600pF 100WV ±5%	2	C
C817,818	**ECEA16V10**	Electrolytic 10mfd 16WV	2	C
C819,820	ECQM05273FZ	Polyester 0.027mfd 50WV ±1%	2	C
C821,822	ECQM05473JZ	Polyester 0.047mfd 50WV ±5%	2	C
C823,824	**ECEA16V10**	Electrolytic 10mfd 16WV	2	C
C825,826	**ECQM05104KZ**	Polyester 0.1mfd 50WV ±10%	2	C
C827,828	**ECQM05334KZ**	Polyester 0.33mfd 50WV ±10%	2	C
C829	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C
C830	**ECEA16V33**	Electrolytic 33mfd 16WV	1	C
C831,832	ECAG16ER1	Electrolytic 0.1mfd 16WV	2	C
C833	ECQS1471JZ	Styrol 470pF 100WV ±5%	1	C
C834	ECQS1182JZ	Styrol 1800pF 100WV ±5%	1	C
C835	ECQM05333MZ	Polyester 0.033mfd 50WV ±20%	1	C
C836	ECQM05683MZ	Polyester 0.068mfd 50WV ±20%	1	C
C837	ECQM05104KZ	Polyester 0.1mfd 50WV ±10%	1	C
C838,839	**ECCD1H331JC**	Ceramic 330pF 50WV ±5%	2	C
C840	**ECEA16V470**	Electrolytic 470mfd 16WV	1	C
C842	ECEA16N4R7	Electrolytic 4.7mfd 16WV	1	C
C843,844	**ECEA16V100**	Electrolytic 100mfd 16WV	2	C
C845	**ECEA50V3R3**	Electrolytic 3.3mfd 50WV	1	C
C848	**ECEA16V10**	Electrolytic 10mfd 16WV	1	C
C847	**ECEA50V1**	Electrolytic 1mfd 50WV	1	C
C901	ECQM05334MZ	Polyester 0.33mfd 50WV ±20%	1	C
C902,903	ECET35R332SU	Electrolytic 3300mfd 35WV	2	C
C904	ECET35R222SU	Electrolytic 2200mfd 35WV	1	C
C905,906	ECET16R3300S	Electrolytic 3300mfd 16WV	2	C
C907	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100,−0%	1	C
C908	**ECEA16V100**	Electrolytic 100mfd 16WV	1	C
C909	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100,−0%	1	C
C910,911	ECKDDS101MB	Ceramic 100pF 250WV ±20%	2	C
C913	**ECEA16V220**	Electrolytic 220mfd 16WV	1	C
C914,915	**ECKD1H223PF**	Ceramic 0.022mfd 50WV +100,−0%	2	C
C916	**ECEA16V100**	Electrolytic 100mfd 16WV	1	C
C917	**ECEA16V100**	Electrolytic 100mfd 16WV	1	C
C918	**ECEA16V100**	Electrolytic 100mfd 16WV	1	C

REPLACEMENT PARTS LIST

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
C919	**ECEA25V1000**	Electrolytic 1000mfd 25WV	1	C
C920	**ECEA25V100**	Electrolytic 100mfd 25WV	1	C
C921,922	**ECEA50V1**	Electrolytic 1mfd 50WV	2	C
DISCRETE CIRCUIT				
C407,408	**ECEA16V10**	Electrolytic 10mfd 16WV	2	C
C411,412	ECQG05153MZ	Polyester 0.015 50WV	2	C
CABINET				
CA1	SKA1780	Cabinet Assembly (Black)	1	○ A
CA1-1	SKE298	Volume Cover (Black)	1	A
CA1-2	SHG9058-1	Rubber Cushion, Dust Cover	1	B
CA2	SYE446	Cassette Cover Assembly	1	A
CA2-1	SGX996	Cassette Cover Ornament	1	A
CA3	SKU2520-1	Rear Board	1	○ A
CA4	SYE466	Cassette Lid Assembly	1	A
CA4-1	SGX1002	Cassette Lid Ornament	1	○ A
CA5	SGE684	Dust Cover	1	○ B
CA6	SHS3018	Felt, Foot	1	A
CA7	SYL6-1	Foot Assembly	3	A
CA8	SYU304	Bottom Board Assembly	1	○ A
CA9	SBC206	Button, Reset	1	A
CA10	SXE108	Hook Assembly	1	A
CA11	SBH9036	Hinge Substance (Left)	1	○ B
CA12	SBH9038	Hinge Substance (Right)	1	○ B
CA13	SBH9040	Cap	2	○ B
CA14	SYP260	Escutcheon Assembly	1	○ A
CA15	SBN730	Knob Tuning	1	○ A
CA16	SBN714K	Knob Volume Control and Others	4	○ A
CA17	SBC196	Button, Power	1	A
CA18	SBC198	Push Button	9	A
CA19	SHR9044	Blind	1	○ A
CA20	SWE118	Sensor Assembly	1	○ A
CA21	SBN724K	Knob Rec	2	○ A
CA22	SUV122	Headphone Jack Cover	1	A
CA23	SUS184	Spring, Push Button	10	C
CHASSIS				
CH1	SDA182	Pointer Holder	1	○ C

Ref. No.	Part No.	Description	Per Set (pcs.)	Remarks
CH2	SDP592	Pointer	1	○ C
CH3	SHG950-2	Rubber, Lamp	1	C
CH4	RHG211	Rubber, Lamp	2	C
CH5	SDD46K	Drum	1	C
CH6	RDS4170A	Spring, Drum	1	C
CH7	RDR20	Roller	3	C
CH8	RDR23	Roller	4	C
CH9	RDY36	Shaft, Roller	5	C
CH10	RNW150-2	Washer, Roller	6	C
CH11	SHR134	Cord Clamp	2	B
CH12	SDT9304	Tuning Shaft	1	C
CH13	RDY32	Shaft, Roller	1	C
CH16	SHG9102	Rubber, Lamp Holder	1	○ C
CH17	SJA88	AC Cord (SDF, SEV, OVE, GF, GF-2)	1	A
CH18	RHG3-1	Rubber, Line ANT	1	C
CH19	SHG958	Rubber, Stereo Eye	1	C
CH20	SJF110	Fuse Holder	10	○ C
CH21	RJJ78	Mic Jack	2	C
CH22	SNE420	Nut, Mic Jack	2	C
CH23	SJS9202-1	DIN FM Terminal	1	C
CH24	SJS9206-1	DIN AM Terminal	1	C
CH25	SJF9028	DIN SPRR Terminal	1	C
CH26	SJF9102	DIN 5P Terminal	1	C
CH27	RJJ108ZA-H	Headphone Jack	1	C
CH28	SWK202	3P Connector Assembly	1	C
CH29	SWK200	5P Connector Assembly	1	C
CH30	SWK230	5P Connector Assembly	1	C
CH31	SWK232	5P Connector Assembly	1	C
CH32	SWP56	Lead Assembly, Phone	2	C
CH33	XYN4+C12S	Screw 4 mm × 12	4	C
CH34	XWE4E10	Washer 4ϕ	4	C
CH35	XSW3+8B	Screw 3 mm × 8	4	C
CH36	XTW3+10FZK	Screw 3 mm × 10	3	C
CH37	XMC27+10FZK	Screw 2.7 mm × 10	2	C
CH38	XYN26+C8	Screw 2.6 mm × 8	2	C
CH39	XWE26D6	Washer 2.6ϕ	2	C
CH40	XTV3+8FZK	Screw 3 mm × 8	5	C
CH41	XTV3+8BR	Screw 3 mm × 8	7	C
ACCESSORIES				
A1	WN2201N	Microphone	2	C
A2	WN133	Microphone Stand	2	C
A3	SQX5772	Instruction Book (SEV, OVE, GF, GF-2, SDF)	1	○ C
A4	SPT1HCZNRAZ	Demo Tape	1	C